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# ORCHARD and FARM

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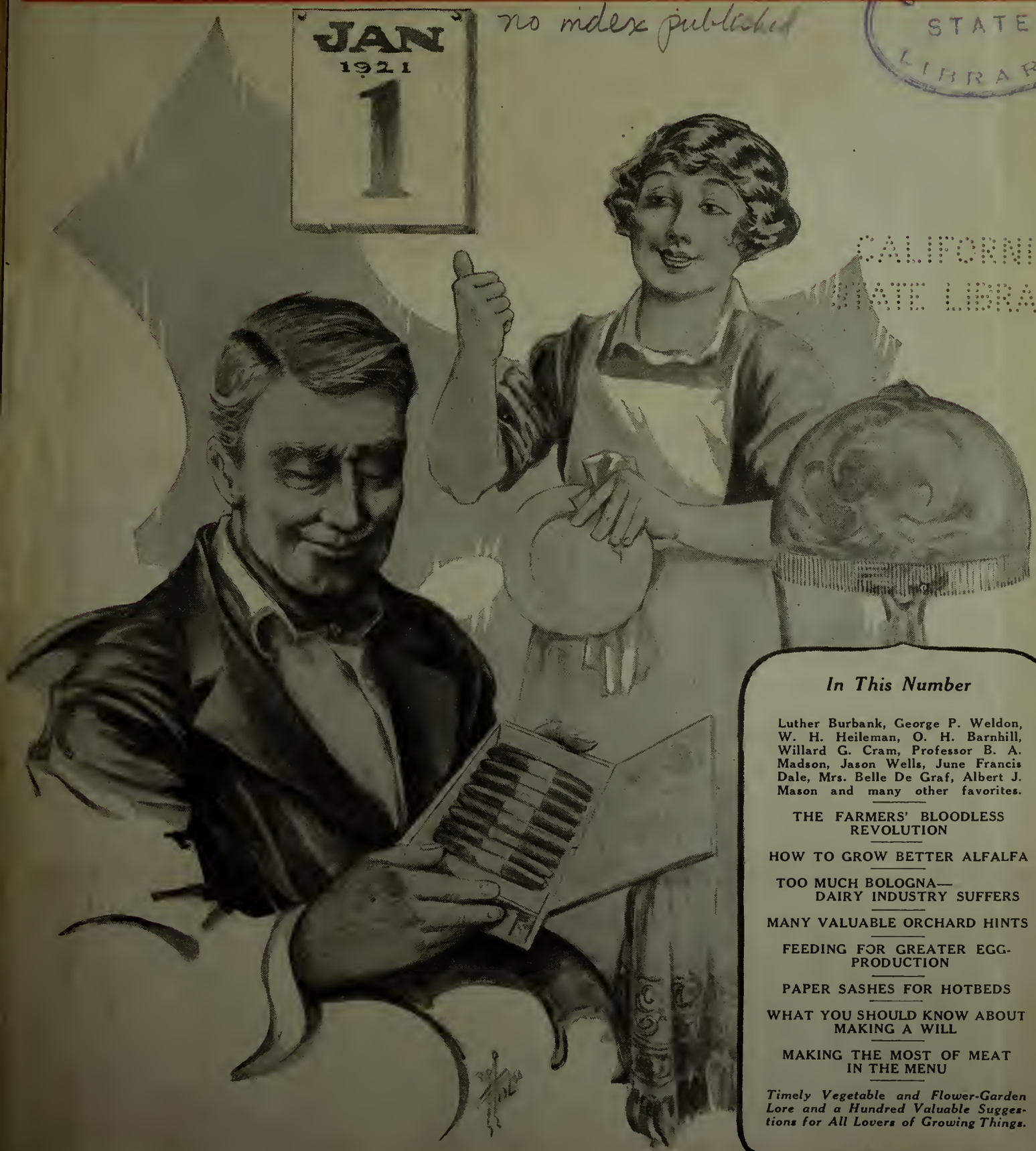


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*In This Number*

Luther Burbank, George P. Weldon, W. H. Heileman, O. H. Barnhill, Willard G. Cram, Professor B. A. Madson, Jason Wells, June Francis Dale, Mrs. Belle De Graf, Albert J. Mason and many other favorites.

THE FARMERS' BLOODLESS REVOLUTION

HOW TO GROW BETTER ALFALFA

TOO MUCH BOLOGNA—DAIRY INDUSTRY SUFFERS

MANY VALUABLE ORCHARD HINTS

FEEDING FOR GREATER EGG-PRODUCTION

PAPER SASHES FOR HOTBEDS

WHAT YOU SHOULD KNOW ABOUT MAKING A WILL

MAKING THE MOST OF MEAT IN THE MENU

*Timely Vegetable and Flower-Garden Lore and a Hundred Valuable Suggestions for All Lovers of Growing Things.*

Copyright, 1921.

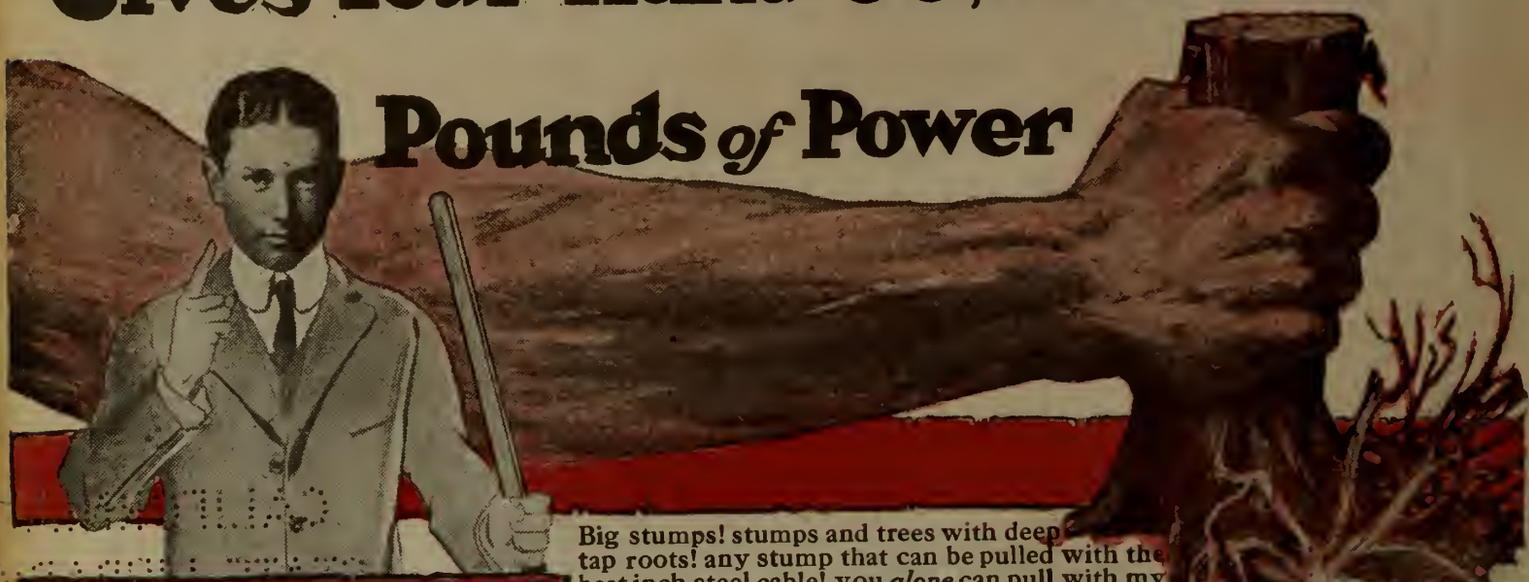
*"New Year's Irresolution"*

Offices:

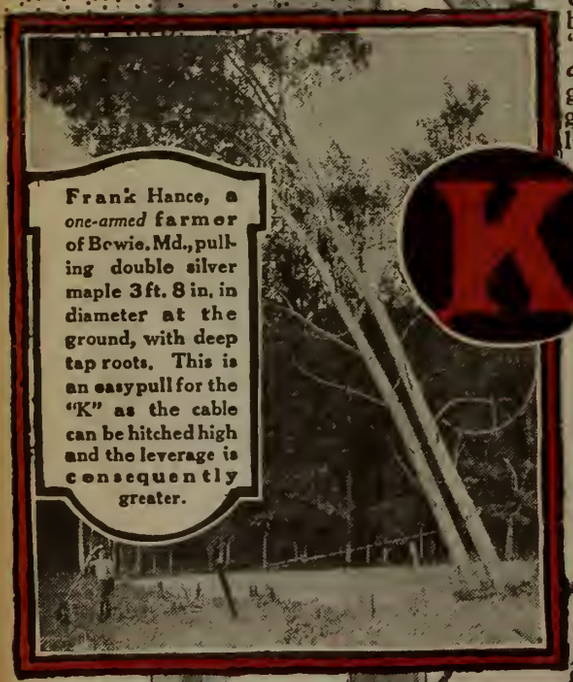
# The K Hand Stump Puller

## Gives Your Hand 96,000

## Pounds of Power



Big stumps! stumps and trees with deep tap roots! any stump that can be pulled with the best inch steel cable! you *alone* can pull with my "K" Hand Power Stump Puller--*without digging and without the expense of teams and powder.* We guarantee it. We refer you to U.S. Gov. officials. We give highest banking references. If you have stump land, the cheapest way of clearing it is with the



Frank Hance, a *one-armed* farmer of Bowie, Md., pulling double silver maple 3 ft. 8 in. in diameter at the ground, with deep tap roots. This is an easy pull for the "K" as the cable can be hitched high and the leverage is consequently greater.

HAND POWER

# K Stump Puller

### How the "K" Pulls Biggest Stumps

The "K" works on the leverage principle of the ordinary lifting jack, except that the power is applied on a cog-wheel instead of a standard. 100 lbs. push on the lever develops a 48-ton pull on the stump—all an inch steel cable will hold. One man operates it alone—no teams to pay for—no walking.

### A Mechanical Wonder

Made of finest steel—guaranteed against breakage. Weighs only 171 lbs.—easily carried or hauled about on its own truck wheels. Has two speeds—60 feet per feet per minute for hauling in cable or for small stumps—slow speed for heavy pulls. *Works equally well on hillsides and marshes where horses cannot work.*

### Owners Praise It

H. Sinclair of the Dept. of the Interior, a U. S. Gov. official, writes: "The stump puller is a wonder."

Ernest Thompson Seton, author and naturalist, declares the "K" "a great success."

Hundreds of owners write in, telling of pulling six- and seven-foot stumps, of pulling faster and pulling bigger stumps than by any other machine.

**Special Offer** We are making a special offer to get a "K" Stump Puller introduced in every neighborhood. Write us today for full information and for free book on Land Clearing and about our Wonderful Drag Saw.

**The Fitzpatrick Products Corp.**
Box 25
99 John St., New York
16th and Kansas Sts., San Francisco

H. G. Hunzicker of Foster, Wash., pulling a 24-inch fir stump with deep tap roots out of hard ground without using powder or cutting any roots.

**Tear Out and Mail Today**

The Fitzpatrick Products Corp.
Box 25 99 John St., New York
Box 25 16th and Kansas Sts., San Francisco
Send me full particulars on your special offer and your free booklet on Land Clearing.

Name _____

Address _____

56643


**OUR EDITORIAL POLICY**

Orchard and Farm is a magazine of, by and for agricultural people. We believe that to the tiller of the soil is due the best that life affords. We believe that he is the bulwark of the Nation. We honor him as the basic producer. His problems are our problems; his triumphs, our triumphs, his joys and sorrows, ours. To record his achievements and expose the duplicity of his enemies; to fight for and with him; to give him genuine help and practical information; to assist, entertain and inspire every member of his happy household—that is the policy of Orchard and Farm.

# ORCHARD and FARM

ESTABLISHED 1888

Published Monthly by Country Life Publishing Company
1111 South Broadway, Los Angeles, California

"THE SILENT PARTNER OF THE SUCCESSFUL FARMER"

Entered as second class matter at the Post Office of Los Angeles, California, under act of Congress of March 3rd, 1879.


**THE MESSAGE OF THE BELLS**

*By June Francis Dale.*

Toll, New Year bells—or throw
Your rounded voices, forth, exultant.
Chant your dirge or shout your chorus—
Spirits rise or fall, resultant.
Each interprets, then, your voice,
And will sadden—or rejoice.
Ring, fateful bells!

Moan, New Year bells—or stir
The sleeping echoes with your singing.
Voice of tears or lilt of gladness
As Life speaks of joy or sadness.
Solemn chant or glad refrain
To each hearer, then, is plain,
Singing, sighing bells!

(Written for ORCHARD and FARM. Copyright.)

# Pithy Paragraphs

JANUARY is a good month to—draw up 12 resolutions (by abandoning only one a month you can make them last a year); take a complete inventory of the farm and open new books; go over all the machinery that will be needed for spring work; mend the window screens; tell a bedtime story to Fred and Mary; eat apples; read a good book; go over the drainage ditches; see that all the animals get plenty of exercise; study your orchard trees; cultivate belief in yourself and your projects.

Some people who think they live upright lives can be downright mean.

Why grow trees on stilts? In planning for the new orchard, resolve to give the young trees a chance by heading them low, thus protecting the trunks from sun scald and borers. Then see how they will produce!—G. P. W.

This is the readjustment period. Don't be surprised, then, if the children's Christmas goodness begins to show signs of the strain!

Hail the new year! May it bring two smiles for every tear; two kind acts for every thoughtless one; many friends and no enemies; less words and more deeds; a fair compensation for an honest day's work; health to those who guard and strive for it; wealth to those who deserve and care for it; happiness and the ability to recognize it. A bright New Year to all!

*Jas. C. Knollin*

—Editor.

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"HE CALLED my father a mince pie," sputtered the irate individual who had been arrested for assault and battery. "Well," asserted the plaintiff, "I have positive proof that his father WAS indicted as a spy at the American mint." Which only goes to show that the printed word is most reliable and accurate. Do not buy merchandise simply because you "have heard it was good." Make sure of satisfaction by supplying your wants with standard articles or service advertised in ORCHARD and FARM. The index below is published for your assistance and convenience. Let ORCHARD and FARM help you to find what you want when you want it. How many of these interesting questions can you answer?


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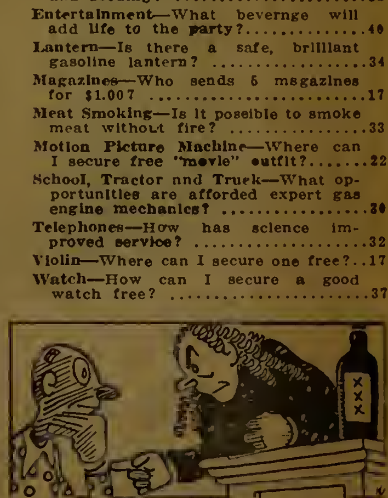


"What did you mean by telling the officer this was horse-medicine?"

"W-well, Jedge, it shorely has some kick!"

*Some of ORCHARD and FARM'S humor may be dry, but its articles never are. The only thing our subscribers "kick" about is that we do not publish oftener. Quantity and quality however, are frequently are divorced. Compare ORCHARD and FARM with other agricultural journals on this basis. Its every issue contains "good medicine" for whatever ails your farm. Nearly 200,000 regular readers constitute a "court" whose verdict is final. What is your decision?*

Articles Very Helpful—"I am a reader of your inimitable paper, and find your articles very helpful."—A. Quetu, Redlands, Calif

### A Creed in Twelve Chapters

(1) Courage.—If you do not learn to keep up your courage in spite of occasional failure you will not get far on the road to success. There are plenty of people who work faithfully until they make an out-and-out failure, and then they jump to the conclusion that there is no use to try again. The people who amount to something in the world all have some blunders to their credit. No one has a record of uninterrupted success. If you fail once, try again. If you fail twice, try harder. Make each failure a reason for redoubling effort.—Robert E. Peary.

Bean Magic Hand Pump No. 9 which can be operated at 100 to 125 lbs. pressure without exhaustive effort.

Bean Little Giant Spray Pump No. 70 for spraying, whitewashing, etc. Large air chamber makes continuous high pressure possible.

Bean Simplicity No. 602-B, a low priced highly efficient power outfit.

# A Real Giant Among Power Sprayers

High Pressure, of course; the Bean drives the spray onto the trees in a dense saturating mist which reaches every crack and crevice—and *kills the pest.* Large capacity, too—a Bean outfit will throw more liquid than any other outfit with the same size engine. But there's more to a Bean than pressure and capacity. There's the equally important feature of absolute dependability—downright sturdiness—ability to stay on the job until the work is done.

## Stays on the Job

The Bean stays with it hour after hour—day after day—until the spraying season is over. When spraying time is at hand, there is no time to waste with adjustments, replacements, or repairs. You have all you can do at the business end of the spray rod or gun—no time to waste with the engine and pump. A day's delay may mean a tremendous loss. With a Bean, you simply start the outfit, open up the nozzle, and forget everything but the saturating of the trees. You get—

*—high pressure*
*—more gallons of liquid per minute*
*—speedier work*
*—more thorough covering*
*—absolute dependability at all times*

You never find Bean Threadless Ball Valves corroded or stuck tight because there are no threads to stick.

## No Stuffing Boxes

No stuffing box troubles because the Bean has no stuffing boxes. Think of that.

The Bean Re-filler enables you to fill up the tank in less than five minutes. Another big saving of time.

## Bean Pressure Regulator

The Bean Pressure Regulator holds the pressure exactly where you want it, and makes possible the removal of any valve in two minutes with full pressure in the air chamber and without stopping the engine. No time lost here.

## Send the Coupon

There are many other vitally important Bean features illustrated and described in the new Bean catalog which tells you all about the Bean line of Hand and Power sprays, Spray Rods, Spray Guns, Spray Hose, and other accessories. Send the Coupon.

BEAN SPRAY PUMP CO.
*Originators of the first High Pressure Sprayers*
103 WEST JULIAN STREET, SAN JOSE, CALIFORNIA
Branches: Fresno Los Angeles

Bean

HAND AND POWER SPRAYERS

BEAN SPRAY PUMP CO.
103 WEST JULIAN STREET, SAN JOSE, CALIFORNIA
Please send your "Spray Catalog"
Name
Street
Town

ORCHARD and FARM

VOL. XXXIII JANUARY, 1921 No. 1

# The Farmers' Bloodless Revolution

*Here is the "inside story" of one of the most remarkable agricultural events in history—the great coup of the California producers which has startled an unsuspecting world. How the farmers, long at the mercy of powerful financial interests, have at one sweep organized a $3,000,000 corporation to handle their own products, and at the same time revolutionized California grain-handling methods, is told especially for ORCHARD and FARM by the secretary of the State Farm Bureau Federation.*—Editor.

W. H. Heileman

By W. H. Heileman

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Cartoon Drawn Especially for ORCHARD and FARM by Ray Shuman.

CALCULATED to make agricultural history is the comprehensive program recently launched by the California Farm Bureau Federation to control the handling of the grain crop of the State and the marketing and purchasing of other commodities.

The movement is basic and far-reaching. California's annual agricultural production now exceeds one billion dollars, and of this amount the grain crop represents a valuation greater than that of any two of our principal farm products.

Necessarily, then, large figures are involved in the financial budget of the new farmers' organization. A million-dollar general corporation has been formed for building necessary storage facilities, processing grains in bulk and warehousing all necessary commodities handled by the exchanges. Already an enormous terminal elevator at Oakland tidewater, with a capacity for bulk storage of 1,500,000 bushels, has been taken over by the farmers' corporation.

### County Units

The plans further involve the creation of farmers' co-operative marketing and buying associations in the various counties, and the opening of a co-operative State exchange, which shall act as an agency for the county units. The necessary machinery for the perfection of this great organization now is in motion, and the incorporation papers are being filed for final review by State officials.

### Immense Operations

With $1,000,000 as the capitalization of the warehousing corporation, about $1,500,000 as the financing budget for the county and State exchanges and another $1,000,000 as the cost of the great terminal elevators, the initial basic sum placed in the hands of the organization will reach the interesting figure of three and one-half millions of dollars. And it may readily be seen that with so large a field for its operations the activities of the organization will involve commercial activity not limited by this great sum.

Perhaps no movement undertaken by farmers is fraught with greater economic features or covers broader activities in every part of the State than the formation of this organization. Economic conditions affecting distribution of farm products have long been of deep concern to farmers. It has taken the final unifying activity and expressive force as represented in the Farm Bureau movement to lead to a true conception of and bring into a real activity a program which in its very nature must lead for better conditions for both the producer and consumer.

Many departures from old practices will follow the development of the plan. Standardization of products and a language descriptive of grades and terms will be introduced and become of common knowledge to the farmer, while statutes and regulations will protect the grower and consumer alike. Expensive brokerages and wasteful methods will be largely eliminated, since every agency employed will have a personal interest and responsibility, and, indeed, a part ownership, in the products bought or sold, or delivered to the user.

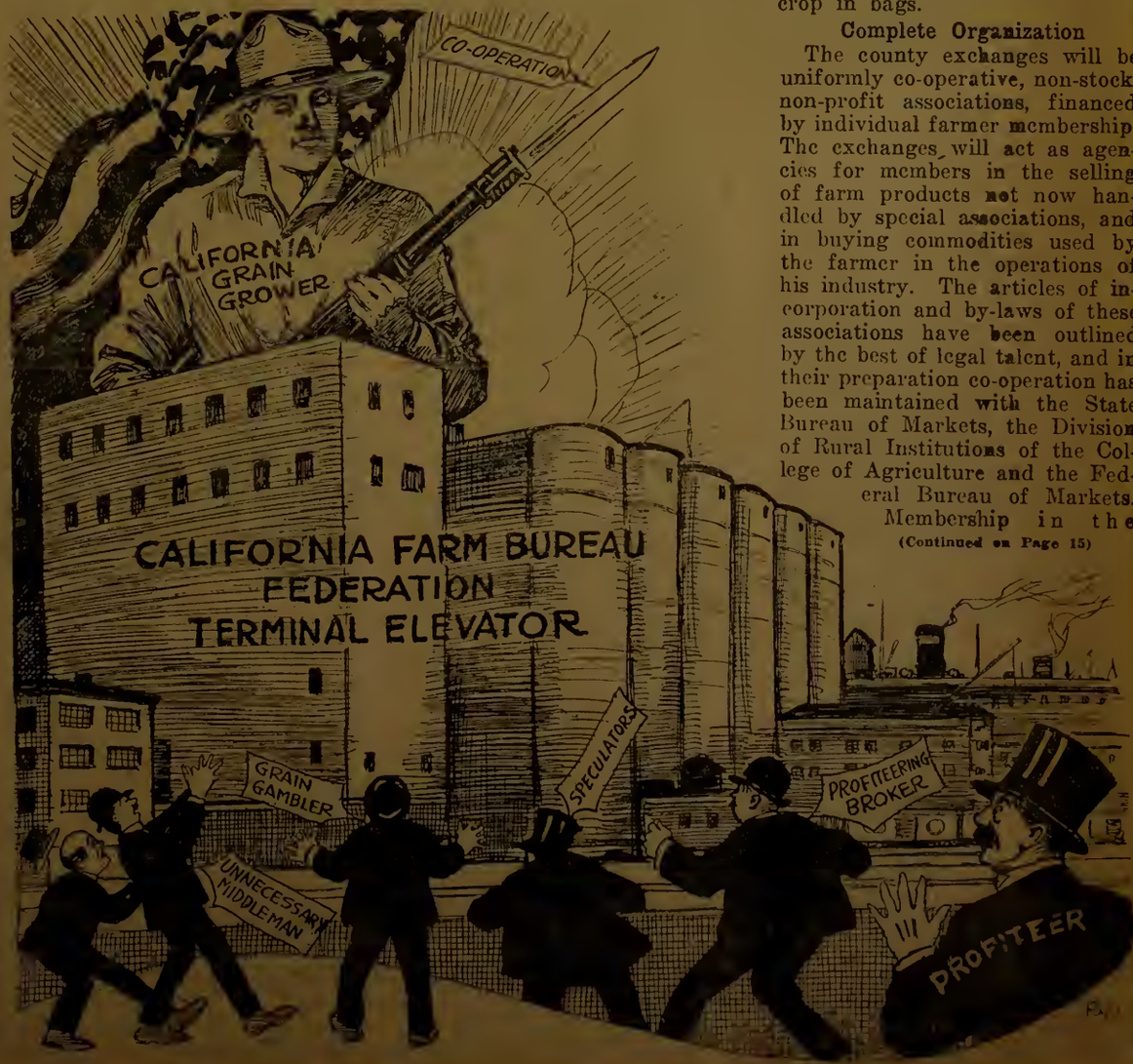
### Exit the Wasteful Grain Bag

The elevator and warehousing corporation primarily will revolutionize grain handling methods in the State and force an economic betterment. It will save millions of dollars now annually spent for sacks as grain containers, and millions more spent in laborious processes connected with transporting and handling the annual grain crop in bags.

### Complete Organization

The county exchanges will be uniformly co-operative, non-stock, non-profit associations, financed by individual farmer membership. The exchanges will act as agencies for members in the selling of farm products not now handled by special associations, and in buying commodities used by the farmer in the operations of his industry. The articles of incorporation and by-laws of these associations have been outlined by the best of legal talent, and in their preparation co-operation has been maintained with the State Bureau of Markets, the Division of Rural Institutions of the College of Agriculture and the Federal Bureau of Markets. Membership in the

(Continued on Page 15)



# Growing Alfalfa Successfully—How to Prepare Land for Maximum Production

*Here is another one of those practical "How-to-do-it" articles! It emphasizes important points that the inexperienced alfalfa grower may overlook, and will interest the successful hay producer as well, because it summarizes the most approved, modern practices in preparing the soil for planting.*

By B. A. Madson

Assistant Professor of Agronomy, University of California.

Professor Madson

WHILE many factors affect the returns secured from alfalfa—such as soil, climate, water supply and length of growing season—the yield depends in large measure upon "building the right foundation" by proper preparation of the land.

It should be borne in mind that alfalfa is a perennial crop which usually occupies a field for a long period of time. This means that any inconvenience or added expense in irrigating and harvesting, as well as any loss in yield resulting from an uneven stand, must be multiplied by the number of years the crop is maintained.

Alfalfa is our most important perennial legume, not alone in California but throughout the entire West. "King of Forage Crops" it is called. During the past 10 years the acreage of alfalfa in California has more than doubled, and without a doubt the next decade will witness a proportional increase. Somewhere in the neighborhood of 70,000 acres of new alfalfa will be seeded in California next spring, it is believed.

This vast acreage represents a large initial investment and the preparation for the crop therefore deserves the utmost attention.

The exact procedure in the preparation of land for alfalfa will depend to some extent upon its previous use. If the land has been in alfalfa before and used for annual crops for only a short period the preparation usually will be quite simple.

A reshaping of the levees, with some releveling of the checks before the seed-bed is prepared, normally will be all that is required.

However, while the acreage of alfalfa is increasing so rapidly, a large portion of the new planting necessarily will be on land which has not previously been irrigated or cropped to alfalfa. Much of it, in fact, will be land formerly used for grain or annual crops which must be leveled and checked for the first time.

Such land usually is rough and uneven in character, necessitating the moving of considerable soil to put it in proper condition, but thorough leveling is absolutely essential in order that the irrigation water may be applied uniformly and with a minimum of labor and expense.

### Breaking Plow Sole

If the land has been cropped to grain or other annual crops for many years, it frequently contains a rather hard plow sole, which must be destroyed before planting to alfalfa. The best way to do this is to plow the land to a depth of 8 to 10 inches or more before leveling. This is particularly important on land which is uneven, for if the plow sole is not broken up before leveling it may be buried so deep on those parts of the field where fills are necessary as to make it practically impossible to reach it later.

If the plow sole is not destroyed it will retard the penetration of water as well as growth of the roots of the young plants, giving rise to a stunted, uneven growth and a spotted condition of the field. Deep plowing at the outset is further advisable, as it provides ample loose soil for the leveling process and thereby greatly facilitates the work.

*Leveling the Checks*

*Cultivating After Leveling*

Before the work of leveling is begun the type of irrigation system to be used must be determined. The type employed will depend largely upon the contour of the field, but most California farmers prefer, if possible, to use the border system, since by this method less labor is necessary in applying the water and less difficulty is experienced in the operation of the implements during harvest.

After the field has been plowed the next step is to rough-level the entire field, removing the knolls and filling in the low places; after this, the levees are built and the leveling process completed.

### Size of Checks

The size of the "checks" must be governed by the character of the soil, the slope of the field and the head of water available for irrigation. One of the most common errors is making the checks too large. This is often done to avoid the use of numerous field ditches, but the result is seldom satisfactory.

The optimum size check for most conditions is one 40 to 60 feet in width and 300 to 500 feet in length. On heavy soil with a large head of water longer checks may be permissible, but if the soil is porous and "takes water" readily the upper end of the check is apt to be over-irrigated before the water reaches the lower end.

A good rule to follow is that where the soil is light or porous or the head of water small the checks should be relatively short, while on heavy soil or with a large head of water checks of greater length may be used. The width of the checks is determined in the same manner, although the natural contour of the land also must be taken into consideration.

### Field Levees Next

After the field has been rough-leveled, the field levees are built and the individual checks leveled to proper grade. The levees should not be too large, but should be so constructed that when the soil is settled they will be about a foot in height and broad and well rounded, so that mowers, wagons and other implements can be operated over them without difficulty.

Steep, narrow levees interfere with the use of implements at harvest time and greatly retard the work.

*Field Well Prepared Except for Smoothing Levees*

In the leveling of the individual checks they should be made as nearly level crosswise as possible, with a uniform slope of approximately 2 per cent from the upper to the lower end. The exact slope permissible will vary with the soil type. On a heavy soil which absorbs water slowly less fall must be given than on the lighter soils; otherwise the water will flow over the surface too rapidly and not soak in.

On the light, porous soils, however, too steep a grade will cause soil washing, which, of course, must be avoided.

The head of water available also must be considered in grading the checks; a small head of water as a rule calls for more fall than a large head in order to force the water over the surface of the check.

### Cultivation of Checks

After the leveling and checking are completed the soil is apt to be packed more or less and in poor physical condition, while on the higher parts of the field the loose surface soil will have been completely removed in many cases. For these reasons a recultivation of the checks is absolutely essential before a good seed-bed can be prepared. This is particularly important, though often neglected, especially on those portions of the field where the surface soil has been removed.

We have often been told that because of the great uniformity of our California soils, the second foot is equally as capable of sustaining plant growth as the first foot. Potentially this may be true, but nevertheless it is a common experience that the crop on the portion of the field where the surface soil has been removed will be less vigorous for a time at least than where the surface soil remains in place. There is no doubt, however, that the poor, stunted growth sometimes obtained is due to improper preparation of the seed-bed.

Exposure to the elements for a time usually is necessary before former sub-surface soil will function as a surface soil. This condition usually can be remedied and the crop-producing power greatly improved by loosening up the soil to a depth of five or six inches and leaving it exposed to the action of the elements for several weeks before the field is to be seeded.

In cultivating the checks it is particularly important to exercise care not to destroy the level or grade. If the plow is used, it is best to plow the field in "lands," plowing two checks at the same time, using the levee between as a back furrow. In this method the dead furrows will come next to the outside levees where they can easily be filled. In no case should the checks be plowed with either a back furrow or a dead furrow down the center, as these will interfere with the distribution of the water when the crop is to be irrigated. Many growers prefer to use a heavy, chisel type of cultivator for this purpose which will loosen up the soil to the proper depth with no danger of disturbing the level of the checks.

### Time to Do Work

Probably the best time to perform the operation of leveling, checking and cultivating is in the early fall while the soil is still dry, as less power and labor is required to move dry soil than wet soil. Furthermore, the danger of puddling the soil is avoided, and the finished field receives the full settling and mellowing effect of the winter's precipitation. If the work is not done at this time it should

(Continued on Page 27)

# PRACTICAL POINTERS
## IN FEW WORDS
## FOR BUSY FARMERS

**Is Common Salt a Poison?**—Yes, under certain conditions. Hogs and chickens are very susceptible to salt poisoning. A certain woman threw the ice and salt water from an ice cream freezer into the chicken yard, with the result that six hens died. Pigs were allowed to graze in a pasture where there were salt licks for cattle. Salt poisoning took several of them within a short time. It is best to keep salt (except in very small quantities) away from hogs and chickens.

**Destroying Live Oak Brush**—Can live oak brush be killed without grubbing it out? One effective method is to apply an arsenical weed-killer to trees that have been hacked around the base. After the stumps are killed, it will take several years for them to rot out entirely. For quick results, especially with larger stumps, the standard stump-pullers advertised in ORCHARD and FARM are to be recommended. Blasting also may be advisable. Two good bulletins on land clearing are: Farmers' Bulletin No. 974, obtainable from Division of Publications, Washington, D. C., and "Methods of Clearing Land," issued by the University of Idaho, Moscow. Manufacturers of stump pullers and blasting powders issue helpful free booklets. (See advertisements in this issue.)

**Measuring Milk in Cans**—The measuring stick used by many dairymen seldom is accurate, especially if the cans are dented. That the scales are the only certain means of measuring milk is indicated by recent experiments, which showed a variation of over 1.87 per cent.

**Is the Crow Friend or Foe?**—Insects supply about one-fifth of the crow's food. On the other hand, he raids the fields and poultry-yard, kills small wild birds and destroys their nests. When this wise old bird comes up before a jury of farmers he usually is convicted on circumstantial evidence without regard to his good qualities. But he isn't altogether a reprobate.

**Feeding Alfalfa to Lambs**—Colorado feeders have demonstrated that alfalfa hay of good quality may be fed to lambs in self feeders, without chopping and with practically no waste. A great saving is reported over the cost of chopping. One feeder estimates that his self feeders have paid for themselves in less than two years.

**Mint Growing**—The articles by O. H. Barnhill on the cultivation of mint, published in recent issues of ORCHARD and FARM have attracted wide attention. Mr. Barnhill says information and mint roots for experimental planting may be obtained from E. B. Wallace, Albany, Ore., president of the Millamette Valley Mint Growers' Association.

**Another Fallacy Exploded**—Charring fence post butts has been so generally practiced that most persons have accepted without question the belief that this process would preserve the wood. Now the Forest Products Laboratory of the University of Wisconsin is reported to have issued a statement, based upon the results of experiments that charring is of little value in protecting wood against decay. "Poisoning the butts of posts is the only way to preserve them," says one expert. "Coal-tar creosote, zinc chloride and sodium fluoride are the most satisfactory materials." Of the three, creosote is said to be the most effective but at the same time the most expensive.

**When Shipping Stock**—Be sure to examine the car for nails and holes; [illegible] nail in any partitions that will [illegible] with doors; be sure to bed [illegible] with straw or wild hay at this [illegible] if animals are going East-[illegible] temporary upper [illegible] cars (they may [illegible] calves in an [illegible] If you have a double [illegible] sheep, be sure to put the sheep above; don't load hogs under cattle; always partition or tie a bull that is loaded with other stock; play safe—send a good man whom you know and can trust with your shipment, for it is often cheaper than giving a "bum" free transportation.

**Poultry Feeding Hint**—Feed the hens regularly if you desire maximum egg production. Underfeeding one day and overfeeding the next is almost sure to result disastrously. If negligence in feeding is due to failure of the feed man to deliver, transfer your business to one who is prompt. The hen that must draw on her reserve of fat during a period of inadequate feeding may stop laying altogether for a while, and nearly always lays less eggs for a week or two. Regularity pays!—Mrs. Bernadine Bolt, Lankershim, Cal.

**Controlling Poultry Lice**—Recent experiments explode the idea that any kind of dry powder will destroy lice. Sodium flouride is considered the most practical remedy.

**Grit, a Poultry Food**—Long supposed to serve the purpose of "teeth" for biddy, grit is now believed to form an important part of the diet, tending to make bright feathers and strong bones.

**New Phosphate Fertilizer** — Department of Agriculture chemists have developed a process whereby 64 per cent of quickly-available phosphoric acid is removed from raw rock phosphate by heating with sand and coke. This great discovery may revolutionize the fertilizer industry.

**Care of Garden Tools**—Wheelbarrows, hoes, rakes, shovels, picks, cultivators, trowels, weeders and spading forks frequently are thrown aside after their summer's service. Next spring they are found the worse for rust; sometimes entirely ruined. Paint applied to the metal as well as the wooden parts before putting them in winter storage protects them from rust. In the spring after a few days of use the paint will have worn off the working parts, leaving the metal bright and clean. Tools will last much longer if given this treatment. Heavy grease also is valuable as a rust preventive.

**Warning to Apricot Growers**—The disease known as bacterial gummosis, which has attacked the apricot in practically every district in the State, is most active in the late fall and winter months. J. T. Barrett, acting director of the Citrus Experiment Station, warns growers to remove the infected bark with disinfected tools and to treat the wound also with proper disinfectants. The first visible symptom is an exudation of gum, usually at or near diseased spurs.

**Beans on Dry Land**—A number of growers near Riverside have been successfully producing pink and red Mexican beans on dry land, provided the crop was planted in March. Heretofore "dry land" beans have been grown principally in the fog belt.

**Citrus Hybrids**—At the Citrus Experiment Station, Riverside, interesting hybrids of citrus varieties are being grown. These include the following: Tangerine and grapefruit, orange and grapefruit, lemon and grapefruit, Valencia orange and Mediterranean sweet orange. Interesting in this connection is the news that the Sampson tangelo, one of the citrus hybrids produced in Florida over 20 years ago, now has reached the stage of commercial production. A hybrid between the King Mandarin and a sweet orange has brought phenomenal prices on the New York market, it is said.

**Life of Concrete Pipe**—How long may properly constructed concrete irrigation pipe be expected to last? This depends upon analysis of the water and environmental conditions. One pipe laid 38 years ago shows no material decrease in carrying capacity, according to an engineer's report.

**Deep Well Pumps**—A new pumping plant, lifting 675 gallons of water per minute from a depth of 470 feet, has recently been installed by John B. La Fourcade, a Pomona Valley raisin grower. It is declared that this pump is raising water from this great depth at a cost per inch less than many water companies are charging today. The enormous weight imposed upon the pump head is equalized by a heavy duty ball-thrust. A 125 horsepower motor delivers the power by belt. The pump is of the turbine-centrifugal type. ORCHARD and FARM is indebted to the Lane & Bowler Corporation of Los Angeles for this interesting bit of information.

**Irrigation, Right and Wrong**—Wasteful methods of irrigation due to poor land leveling and checking, leaky canals and ditches and careless handling of water have ruined many farms and caused their abandonment. Complete drainage frequently is the only means of reclamation. Irrigation without drainage is more than risky; the life-giving water may be the means of ultimate ruination.

**Precaution for Animal Breeders**—The proud exhibitor of prize winning show animals often comes to grief upon his return to the farm by introducing disease into his home herd or flock. All show animals, as well as those purchased, should be segregated for a period that will insure their freedom from contagious diseases to which they may have been exposed.

**Even Tempered Farm Stock**—Livestock breeders are giving more and more attention to the dispositions of their animals. A mean horse soon causes the loss of enough time to reduce his value. An excitable, kicking cow always requires more time for milking and may increase the difficulty of keeping good help. Although a mean temper usually is the result of improper handling, it may be an inborn trait, subject to remedy by breeding. I know one important buyer of livestock who never purchases from any breeder who has not a reputation for kindness and gentleness. The man who loses his temper with animals only injures himself.—Albert J. Mason.

**What Are Vitamines?**—We hear much nowadays of "vitamines." Scientists have shown they are essential in the diet, both of human beings and animals. Recently the vitamines have been removed from foods and placed on exhibit as a solid substance. A graphic illustration of their value was furnished by two rabbits, one of which had been deprived of vitamines, and was thin, weak and scrawny. The other had been given food rich in vitamines and was fat, healthy and sleek. Vitamines are found in green plants, milk, eggs, grains, nuts, beans, oranges, grapefruit, lemons, tomatoes, spinach, lettuce and cabbage. Frequently they are lost when food products are highly refined. The human being suffering from lack of vitamines is usually the so-called "freakish" dieter, who lives upon unnatural foods and limits his diet to only a few of these. Children especially need vitamines; hence the value in the diet of the growing child of milk and eggs.

**Sugar Beet Soils**—While it is generally known that sugar beets may be grown with success on soils too alkali for other crops, it is not true, as many farmers believe, that "almost any soil will do." Sandy and clay loams are ideal for sugar beets, according to a recent statement by the U. S. Department of Agriculture, and a good test is the ability of the soil to produce corn or potatoes, which is said to be indicative of its value for beets.

**Time to Look for Mites**—This is the time of the year to be on the constant lookout for the presence of mites on the fowls, and particularly in the poultry house. These insect pests not only lower the vitality of the birds, and thus render them liable to disease, but their presence has a decidedly bad effect on egg production. Frequent spraying of all cracks and crevices of the house and the undersides of the roosts with kerosene or 5 per cent carbolic acid will greatly help to eradicate mites, and thus add to the comfort and general health of the birds.

**Effect of Feeds on Milk**—Warm milk quickly absorbs odors. Such aromatic feeds as ensilage, cabbage, rape, beets, turnips, rutabagas, carrots, and their tops impart a characteristic odor and taste to milk. The taste and odor produced by these substances in milk is not due ordinarily to their ingestion by cows or to their elimination through the udder, as generally supposed, but to the highly absorbitive powers of the milk after it is drawn. Experiments have shown that when these products are fed in moderate quantities and always after milking—not immediately before or during milking—the milk is not tainted by any special odor or taste.

## Many Good Things Are in Store

*IN THE February issue our Mr. Weldon will give a comprehensive discussion of the new and serious pest, "Peach Thrips." Its life history and various control methods will be discussed. No previous article has been published on this important subject; nothing more than brief notes. Deciduous fruit growers will look forward with particular interest to this feature.*

*There will be another article by Professor Madson on alfalfa growing, the topic selected for the next paper being "The Seeding and Care of the Crop."*

*George Gautier, an expert in the propagation of field and garden plants, will contribute the second of the series commenced in this issue.*

*Another of those unusual and very helpful legal articles by Willard G. Cram also will be included in the February issue. A number of readers have congratulated us upon securing the services of Mr. Cram, who writes in a popular style upon important legal matters.*

*Mrs. Belle De Graf, who is writing a practical, interesting series of domestic science articles for the Woman's Page, will discuss in her next contribution, "Sour Milk Cooking." She will show how to use sour milk in many different ways and will point out its superiority for various recipes.*

*These are but a few examples, given to show what a fine number is planned for next month. There will be the usual bright and interesting features that make ORCHARD and FARM widely known as "The magazine of personality." Many surprises are in store for our readers for the new year. Be sure not to allow your subscription to expire!*

# The Ontario Peach Comes Into Its Own

*It is to the advantage of everyone allied with the fruit industry that varieties be clearly identified. Much confusion has resulted from the duplication of names which frequently has taken place with varieties of different characteristics. Mr. Weldon explains why the Southern "Tuscan" deserves to be re-christened and points out its valuable qualities.—Ed.*

By George P. Weldon

CONTRIBUTING HORTICULTURAL EDITOR OF ORCHARD AND FARM
Pomologist, Chaffey Junior College of Agriculture

IN CALIFORNIA the name "Tuscan" is familiar to everyone who has anything to do with peaches. Yet this word is a misnomer, as the true name of the peach which originally bore the name was "Tuskena." The Tuskena peach, according to H. P. Stabler, was introduced into Sutter County in the early eighties, from the Beckman Nursery of Augusta, Georgia, by Joseph Phillips of Sutter County. Since its introduction it has become one of the most popular varieties for canning purposes, and there are extensive plantings in every important peach-producing section of the State.

Geo. P. Weldon

The very popularity of the Tuskena variety has worked against its identity, as plant propagators have put various things on the market as Tuscan that have been represented as improved through selection or crossing. In most cases the so-called Tuscan varieties are so different from Tuskena that it is very unfortunate that their names should in any way convey the idea that they are similar.

The fruit grower when planting an orchard, chooses a variety, if he is wise, that is well adapted to the conditions where planting is to be done. If he orders Tuskena because it is known to do well under his conditions, he does not want the nurseryman to substitute something called "Improved Tuscan," or still some other Tuscan, with the claim that the tree supplied is superior to Tuskena.

Exactly such a situation has arisen regarding the so-called Southern Tuscan and the Northern Tuscan as two distinct varieties commonly found in Southern California are designated. Tuskena, under the conditions of the Southern California peach belt has never been as popular, and probably has not been as good a variety as in Sutter County, or other counties of the North. It is rated under Southern California conditions, not only a shy bearer, but also an irregular, somewhat uncertain bearer. The Southern Tuscan on the other hand is rated as a heavy, consistent bearer, which may be expected to produce a good crop of fruit each season.

### Unfortunate Confusion.

The confusion existing in relation to these two varieties is unfortunate and often serious. As each has borne the name Tuscan, many planters have not learned to distinguish between the two; consequently orders have been placed for Tuscan peaches and the variety received has sometimes depended upon which the nurseryman had in stock.

*A good specimen of the true Tuskena Peach*

| Variety | Shape | Base | Color | Stem | Cavity | Size | Flesh | Pit | Quality | Actual Measurements |
|---|---|---|---|---|---|---|---|---|---|---|
| TUSKENA | Oblong, inclined to be rectangular. | Much narrower and less flat than Ontario. | Deep yellow with very red blush, sometimes becoming quite purple; not as highly colored as Ontario | Short. | Deep, acute, not as large as Ontario. Apex varies from slight projection to a prominent point. | Large; 3 inches or more. | Yellow, firm, fine-grained, sometimes a little stringy. Rather tart except when ripe. | Large, oval. Typical specimen measured 1¼ inches long, 1 inch wide and ⅝ inches thick. Deeply convoluted. Terminates in a sharp point. | Good. | Typical fruit measured 2⅞ inches in diameter, 3 inches from stem to apex and weighed 8¼ ounces |
| ONTARIO | Round. | Flat. | Yellow with deep purple blush; sometimes covering entire surface when ripe. | Very short. Basal portion often has impression of stem. | Deep, obtuse oval in outline. Apex flat to slightly pointed. | Large; commonly 3 inches. | Yellow, firm, fine grained, sometimes slightly streaked with red on colored side. Slightly red closely surrounding the pit. Sweet, delicious. | Small, roundish, shallow convolutions. Typical specimen measured 1¼ inches long, 1 inch wide, ⅝ inches thick. | Best. | Typical fruit measured 2 1-16 inches in diameter, 2⅝ inches from stem to apex and weighed 7¼ ounces |

*Typical Ontario peach (formerly called Southern Tuscan)*

In many cases of Northern Tuscan or Tuskena plantings south of the Tehachapi Mountains, there has been a very serious loss to the planter. In order to avoid this confusion, and to enable the planter to identify the variety purchased, the writer recently prepared an article for the September number of the Monthly Bulletin of the State Department of Agriculture, in which technical descriptions were given to these two varieties, and in which the Southern Tuscan was given the new name Ontario.

### Justification for Renaming.

In looking into the history of the Southern California peach known as Tuscan or Southern Tuscan, the fact was determined that while the stock originally came from the north, the variety is now little grown any place north of the Tehachapi range of Mountains, while in the peach districts of the South it has been a popular variety for at least 20 years. Now, there is a large production of this peach in San Bernardino, Los Angeles and Riverside Counties than of any other variety.

Before preparing the article for the Monthly Bulletin the writer made careful investigations and interviewed many growers regarding the different kinds of peaches bearing the name Tuscan. Samples of the Tuscans of the north were received from Sutter, Yuba, Sacramento, San Joaquin, Placer, Stanislaus, Madera, Fresno, Kings and Tulare Counties. In every case with a single exception, the variety received proved to be Northern Tuscan or Tuskena.

The exception consisted of a small lot of typical specimens of fruit and foliage of the Ontario variety sent from Sutter County, the original California home of Tuskena. Apparently in that county there is a limited production of this variety going by the name of "round Tuscan." It is very probable also that it has been confused with a round type of Tuskena, samples of which have been received from Madera, Fresno and Placer Counties.

### Canneries Checked.

During the past season when the Tuskena and Ontario varieties which ripen about the same time, were being shipped to the canneries, all shipments from the northern part of the State to local canneries proved to be Tuskena rather than Ontario. Therefore, from a fairly accurate personal knowledge of varietal distribution, and from extensive correspondence with men who are familiar with peach varieties, the writer has felt justified in drawing certain definite conclusions leading to the renaming of the popular Southern Tuscan variety.

Also, because of the long time that this peach has been a leading Orange

Continued on Page 26)

—Illustrations courtesy California State Dept. of Agriculture.

*Above—Leaf of the Ontario peach (note saw-like edge).*
*Below—Typical Tuskena leaf, showing smooth edge.*

# What You Should Know About Your Will

*(This is one of a series of legal articles, written in popular style by Mr. Cram, especially for ORCHARD and FARM. The writer is widely known among farmers because of his work with the Berkeley Federal Land Bank. All rights reserved by the author. Watch for Mr Cram's third article soon.—Ed.)*

By Willard G. Cram

A WILL may be defined as the disposition of one's property to take effect after death; or as a solemn disposition of one's property in the form prescribed by law, which, although made while living, does not take effect until the death of the maker.

The desire of man to control his property during his life and to designate to whom it shall be given after his death has existed for hundreds of years. The Holy Scriptures show that the practice of making wills existed among the Hebrews in the days of the patriarchs.

In fact, the Bible is really two wills, or testaments, the old and the new, the old having been revoked by the birth of a Son. Solon, the great Grecian law-giver, introduced the will into Athens, and it existed among the Romans before the date of the Twelve Tables. In England, prior to the Norman conquest, A. D. 1066, the Anglo-Saxon law recognized the right of the owner to will both personal and real property.

In the United States each State has its particular laws and statutes as to wills, and since the making of a will is a statutory right, the law in such State must be strictly complied with.

## Legal Terms Explained

A person making a will is called a "testator" when a man and a "testatrix" when a woman. One who dies leaving a will is said to die "testate;" without a will, "intestate." The person appointed by the testator to carry out the terms of the will is called an "executor" if a man and an "executrix" if a woman. The person appointed by the court to carry on and settle the affairs of one dying intestate is called the "administrator" if a man and the "administratrix" if a woman.

The "separate property" of a husband or wife is all of the property of such husband and wife which he or she owned before marriage, and all the property acquired afterward by gift, bequest, devise or descent.

All other property acquired after marriage either by husband or wife or by both is "community property."

It should be noted that this article is written so as to conform in its detail with the laws of the State of California. And inasmuch as "Amendment 13," which sought to amend existing community property laws, was defeated at the recent elections, the subject is here discussed on the basis of the act of 1919.

## Who Should Make a Will?

All persons who have real or personal property which they desire to leave to such individuals as would not receive the property through normal process of law should make wills. Also if one has in mind some person or corporation that he wishes to manage his estate while it is in the process of being probated, he should make a will appointing such person as executor.

One frequently hears this remark [illegible] by laymen: "The law makes a [illegible] will for me." Perhaps [illegible] so but are you sure you [illegible] what the law is and how the [illegible] scent operate? What is the [illegible] that the law makes? This de[illegible] upon the relation of the de[illegible] society in general; upon his [illegible] and the number and [illegible] relatives both blood and [illegible]. If A dies intestate, [illegible] wife, mother, [illegible] and there are no heirs, his property goes to the State for the benefit of the common schools. The various laws of descent are too numerous and technical to set out in detail here, but one should know in a general way what property his surviving wife and children may take if he does not make a will. The great controlling factor is the kind of property, whether "community" or "separate."

## What Happens to Separate Property?

As to "separate property."—If there is a surviving wife or husband and no children, the surviving wife or husband gets one-half of the property and the other half of the property goes to the decedent's living relatives in the following order: Father and mother of deceased; then brothers and sisters, etc.

If the deceased leaves a husband or wife surviving, and neither children,

> **The Most Important Document You Will Ever Sign**
>
> ***FOLLOWING the sudden death of her husband, a certain woman said to her lawyer:***
>
> ***"My husband died detested and left two infidels, and I want to be appointed their executioner." In view of the fact that legal terms are not well understood, I have defined these terms "in plain United States," so that every reader will be enlightened as to the various factors in drawing up the will.***
>
> ***Who is to own your property after death? The answer to this important question will depend upon whether you make a will or leave the property to be divided for you by law. Your will, therefore, is the most important document that you will ever sign.—W. G. C.***

father, mother, brother, sister nor the children or grandchildren of a deceased brother or sister, the whole estate goes to the surviving husband or wife.

If the deceased leaves a surviving husband or wife and one child or the lawful issue of one child, the wife or husband gets one-half and the child or the issue of the child gets one-half.

If there is a surviving spouse and two children, or one child and the lawful issue of another child, the surviving spouse gets one-third and the remainder goes to the children.

If the decedent leaves no surviving husband or wife but leaves issue, the whole estate goes to such issue. There are certain other laws as to succession, such as the interest of illegitimate children, that will not be considered in this article.

## As to Community Property

If the wife dies, all the community property without administration goes to the husband; while upon the death of the husband only one-half goes to the surviving wife, excepting such property as may have been homesteaded or set apart to the wife by the probate court. In this connection, it might be said that this feature of the law was the part called unjust by the proponents of the amended community act above mentioned. The wife has certain rights in a homestead whether or not a will is made and in spite of a will. If a homestead was properly selected, from the community property or from the separate property of the person, selecting or joining in the selection of the same, it goes absolutely, on the death of the husband or wife, to the survivor. If the value of the homstead so selected does not exceed the sum of $5000 the court will set such homestead off to the survivor and if the property is worth more than $5000 the court will carve out of the original a $5000 homestead.

It will be noted here also that if a person die without a will or with one and the property is either community or separate and it does not exceed the value of $1500 it can be set aside to the widow. In view of all of these facts the reader will readily see that if he wants his wife to receive ALL OF HIS PROPERTY and it exceeds the values stated above, he must make a will.

## Who May Make a Will?

In California every person over the age of 18 of sound mind may make a will. In some States the testator must be at least 21. In California a married woman may will all her separate property as though single, and when her community interest has been vested in her by the death of her husband or set aside to her by the court she may will that also.

## What May Pass by Will?

All real and personal property and every estate to which heirs, husband, widow or next of kin might succeed may be willed subject to the restrictions above noted, it being specifically noted that the husband may will one-half of the community property. Life insurance, when the policy is made out to the widow or children as the beneficiary, does not become a part of the estate and is not subject to the debts of the estate. Life insurance made out to the estate is a part of it and is subject to debts of the estate.

## To Whom Property May Be Willed?

In general, all natural persons and all corporations that are so empowered by law may take by will, with the restrictions that charitable or benevolent societies or persons as trustees for such, may not take under a will unless the will was executed at least 30 days before the death of the testator, and in no event can such institution take more than one-third of the estate, if the testator leaves legal heirs.

This feature can be illustrated in the will of the late Theodore Kearney, who left a million dollar estate to the University of California indirectly by leaving it to three persons who were to deed the same to the university.

He stated in his will that he had no heirs, but for fear some spurious heir might be established, he avoided the reversion to such heir of the two-thirds interest, and by especially stating that he had no children and willing to any persons establishing the fact that they were his children $1 each, he avoided any danger of conflict with the law which gives certain property to a child that is not mentioned in a will and not provided for.

As noted in a previous article, published in the November issue of the ORCHARD and FARM, some persons desiring to evade inheritance tax or to save probate expense attempt to dispose of their property by drawing deeds to certain persons, the deeds not to be delivered in the life time of the grantor. This may lead to serious results.

Unless the deed has passed out of the control of the grantor and the wording of the instruction to the holder of the same is very technically drawn, it may be set aside by certain interested parties, and the law as to the inheritance tax reaches all deeds made in the contemplation of the

(Continued on Page 22)

# 4,200 Eggs From 48 Hens

Simply write me and I will send you a big triple size box of my famous Buttermilk Compound Tablets by return mail, postpaid. I want you to know that you can double and treble your poultry profits by doubling or trebling your egg yield—perhaps get five to seven times as many eggs as did many of my friends last winter by using these wonderful tablets. Fed in drinking water or feed. Because I want these tablets known in every township in America I say: Try them at my risk. If you like them, tell your friends. If not, you are not out a cent.

## *Over 10,000 People Wrote Me Last Year*

Here are a few samples of the kind of letters I get from all parts of the United States.

### 4,200 Eggs.

I used two boxes of your tablets. Before using them got only 6 eggs a day. Within two weeks was getting 12 to 15 eggs a day. In seven months I got about 350 dozen (4,200) eggs from my 48 hens. I did not have any Roup. I give your tablets the praise.
MRS ARTHUR TUCKER, Wilkinson, Ind.

### 75 Eggs Instead of None.

I found the tablets were fine to start hens to laying. Before using the tablets I wasn't getting any eggs. Within 10 days after using tablets increase started. I was finally getting 75 eggs a day and fed the tablets until spring.
MRS. R. H. TULTZ, Scranton, Kans.

### Makes 'Em Lay in Coldest Weather.

Last winter I fed two boxes of your tablets mixed with feed. Before using tablets got only 12 eggs a day—afterward 30 to 36 eggs a day. This was within three weeks. After feeding the tablets six weeks got 50 and 60 eggs a day and in the coldest weather in winter.
MRS. ELMER HOTTMAN, Ridgeway, Wis.

### Best Tablets Made.

The Buttermilk Compound Tablets I think are better than the common tablets. I got more eggs within two weeks after using them. I have some other tablets but the "Buttermilk" are the best. I fed three boxes last winter. My flock did not have the Roup. Will send for more tablets.
MRS. WALTER ELLIS, Gypsum, Kans.

# FREE

Because I want one million new users of these wonderful tablets I am willing to send you a big triple size box if you will just write me. Your name and address is all I need. Use a postal card if you wish—I'll send the tablets by return mail, post paid. You use the tablets 30 days, then report results to me. If you are not satisfied in every way—if you are not more than pleased—the tablets are to cost you nothing. But if you do find that you get many, many more eggs—probably three to five and even seven times as many—and your flock is healthier than ever before—full of pep and strutting around with healthy red combs the tablets cost you only $1.00. No matter what you have tried before, I want you to remember that my secret formula is absolutely different from anything else—that it has been known to succeed where others failed. Not only that—you must remember that I send you a big triple size box—nearly three times as big as the ordinary box of tablets.

At any rate, the risk is all mine. You can't afford to pass up this Special Introductory offer a single minute—it may never be made again.

## Send No Money — Just Write Me, That's All.

All I need is your name and address—just put it on a postal card or use the coupon below—I'll understand and send you the tablets post paid by return mail.

**R. C. COMBS, Gen. Mgr., Milk Products Co.**
**659 Creamery Bldg., Kansas City, Mo.**

As per your offer send me your big triple size box of Comb's Buttermilk Compound Tablets. I understand I may use the tablets in a 30 days' test, and if satisfied they cost me $1.00, otherwise they are to cost me nothing.

Name ..............................

Address ..............................

R. F. D. ................P. O. Box................

# Meet the Middleman Half Way--With a Glad Hand, But a Firm Grip

*Here is an article that is "different." It shows that there are other things as necessary to cultivate as crops. "When in Rome, do as the Romans do," is the theme of its advice. In his kindly criticism, Mr. Barnhill speaks as one of us. He answers in an interesting way the question, "Is the average farmer a good business man?" His observations are of unusual interest, coming from one who was raised and now lives on a farm.—Ed.*

By O. H. Barnhill

Contributing Editor of Orchard and Farm for the Pacific Northwest.

*Illustrated by "Hal."*

ONE of the greatest shortcomings of which we farmers are guilty is in our business dealings, not so much with each other as with city dwellers—the men who buy our products and sell us supplies and service.

We know this to be true because of the pain in our pocketbooks after such encounters and also because our commercial adversaries frequently remind us. Ever and anon—sometimes oftener—they come to us frankly and admit that we have made a pair of

*Often Gets the "Short End."*

mules of ourselves by letting them get the best of us in business deals.

They may even go so far as to say they are sorry; and so they are—genuinely sorry when we are unable to look out for our best interests, since it often results in our growing discouraged and giving up the farming game, or at least in producing less. Certain townsmen like to see us prosper because they make their living through our work. The more we raise the more raw products they have with which to work and make money and the more means we have with which to buy their finished products.

### The Ultimate Goat

It is an open secret, admitted by everybody, that middlemen—that is, as a rule, city men—get more than their share of the ultimate consumer's cash. It is just as generally admitted that the primary producer—in nine cases out of ten a farmer—gets the rawest deal of anybody in the game. He often receives less for producing an article and hauling it to market than a cold and calculating capitalist gets for passing it on to the next man in line

Why is this? We know it is not that the "town tribe" is any smarter than farm folks, because when we move to the city and engage in its activities we generally beat the town-bred man at his own game. So it must be our training and environment which so often causes us to fall down and crawl out of the little end of the horn, so to speak, after we have gone up against the wise and wily individual who buys our soil stuff and sells us store goods and service.

### Game of Matching Wits

City people make a special study of merchandising and are past masters in the gentle art of buying low and selling high, as well as in coaxing people to sell what they should keep and buy what they do not need. We farmers devote most of our time and energy to production and so when it comes to commercial contests we frequently are worsted.

Of course, it is not all a question of simply buying and selling, but also of persuading lawmakers to come through with legislation favorable to special interests and influencing public opinion in desired directions and in many other ways, all of which depend for success on the merry game of matching wits with other people. We farmers know we are making a mistake in letting city folks get the best of us in such encounters, but we don't always know how to help ourselves.

Here are a few pointers which are the result of special study of the subject by one who has been on both sides of the fence and is therefore in a position to see the weak places in our armor and method of attack. In the first place, we fail to profit by the object lessons set before us every time we go to town.

### Are Clothes Important?

For example: When we meet an opponent in a deal involving hundreds or perhaps thousands of dollars, we see the latter carefully and attractively dressed. Why? To impress us favorably, of course. Then why not follow his example?

When we enter an office in the city wearing unkempt, ill-fitting clothing we lose our self-respect and are oppressed by a feeling of inferiority. Our well dressed opponent's ill-concealed contempt for our unattractive personal appearance places us at a disadvantage in the mental dual which follows. If it pays a town man to wear good clothes while transacting business, why will it not prove equally profitable for the country man to dress well? Can't afford it? Why, we can afford it better than the city fellow, because he has to wear good clothes all the time, while we do not need to wear them except on those comparatively rare occasions when we are transacting important business in the city.

*A Loss of Self-Respect.*

Of course, we do not need to dress up every time we go to town to get the horses shod, deliver a bunch of hogs, bring out a load of lumber or buy a few groceries; but when we go to make important sales and purchases, to interview the banker or to transact any other kind of big business, it certainly will pay us to look as well as the people with whom we are dealing.

But do we? Do the artists who draw the funny pictures of farmers for the comic papers depend entirely on their imaginations for subjects? Candor compels us to admit that they do not. To be frank, we are not noted for neat haircuts and clean shaves. Our shoes are apt to be dusty or muddy and our clothes too often smell of the stable. "Clothes do not make the man," it is true, but we must admit that in this day and age they are quite important

We do not advocate a reckless display of costly wearing apparel, but it is only fair to ourselves that we should dress respectably and in good taste, appearing in clothes that fit us and are suited to our station in life. This is not dudishness or snobbishness, but only common sense recognition of the important part which personal appearance plays in the business world. When we had to drive a team to town it was hard to keep from looking and smelling something like a hostler, but since the advent of the auto it is easy to keep ourselves neat and clean when we drive into the city

### Importance of Cordiality

The successful business man, as a rule, is pleasant, polite, friendly and good-natured. He greets a customer with a smile, a cheerful salutation, sometimes a hearty handshake and friendly inquiry concerning health and the family's welfare. Are these men always acting as they feel? Are all business and professional men good-natured, cheerful and friendly by nature and possessed of a real heart interest in our good health and prosperity?

Of course not, you say. They act that way to get our money. Some of them are crusty, selfish old grouches. But they put on a pleasant, agreeable air in order to get us in a good humor so that it will be easier to pry open our pockets and relieve us of our cash That's exactly the idea. They have learned by precept and experience that it is good business to be affable, optimistic and hail-fellow-well-met. We see that plainly enough. But why cannot we see that if it pays our opponents to act that way it will pay us to conduct ourselves in a similar manner?

### The "Glad Hand"

Right here is where we make our second big mistake. How often do we antagonize our adversaries by being gruff, boorish and even insulting at times! How seldom does our manner match our opponents' in politeness, pleasantness and all that makes good breeding! We think it doesn't matter; that he makes the prices and terms and there is nothing left for us to do but take them or let them alone.

There's where we "get off our concrete base," so to speak. All men are human, even those who reside in the city. They are just as susceptible to various influences as we If we treat them properly they are more apt to give us a good deal than if we antagonize them by our manner and conversation. We know from experience that this is true.

### Examples at Home

Why is it that some farmers are better traders than others? We do not believe in luck; it must be something else Good judgment? Most assuredly. But good judgment consists in knowing not only when and where to buy and sell but also the best manner of making sales and purchases.

Think of the farmers in your neighborhood who have the reputation of buying cheap and selling things at attractive prices; who frequently obtain concessions and favors from professional and business men in the city and who are considered fortunate in other ways. Are not these men, as a class, friendly and good-natured pleasant and agreeable in their intercourse with their neighbors and everyone else? Or are they surly, close-mouthed chaps who are always growling and grumbling about the way they are held up and cheated by "those city buyers"? You know which are the "lucky boys," the ones who are always picking up easy money. Why not "take a hunch" and learn from them lessons in personality?

### Field for Study

We know how to treat the cow to make her give down her milk and how to humor Biddy when the egg basket needs filling, but most of us have never studied human nature, scientific salesmanship or how to handle the hard-boiled business man of the city so that we can deal with him to advantage.

Instead of studying entirely about stock and soils and the problems of production, would it not pay us to devote a little time to learning how to handle the men who get our money and who pay for our products? What shall it profit a man if he raise a whole world of good things to eat and wear if he lose out in selling, as so many of us do?

There are plenty of good books which tell how to cultivate a pleasing personality and which explain the best methods of handling people in business dealings. Ask your nearest librarian to send to the State library for literature on the subject; it is also taught in schools, some of which have correspondence courses.

### Personality Counts

It is largely a matter of personality, which we farmers possess in a cruder less developed state than any other class of people. This is the result of having so little intercourse with our fellow men But when we do meet

(Continued on Page 27)

*"Hail Fellow Well Met."*

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*"The use of a truck on Goodyear Cord Tires has enabled me to release three teams and three drivers from threshing work and is shortening the length of my harvesting season three to four weeks, thus helping the thresher to finish the job while good weather lasts. The pneumatics roll easily over plowed fields, through stubble, barnyard mud, snow and so on. At 12,000 miles, they look good for 12,000 more."—Carl J. Gustafson, Owner of Willow Grove Farm, near Aberdeen, South Dakota*

MORE and more farmers constantly are reporting, as above, marked benefits obtained from motorization and particularly from motor trucks on Goodyear Cord Tires.

They have found that quick field hauling assists power-machines by prompt supply and removal of loads, and that the pneumatics make such hauling possible.

A sturdy truck on Goodyear Cord Tires, therefore, is of vital aid to year 'round motor-farming; to motorized pumping, spraying, threshing, silo-filling, feed-grinding and other work.

Pneumatic traction overcomes soggy, slippery going; pneumatic cushioning prevents severe shaking and loss of load; pneumatic activity saves much time.

By the development of the rugged Goodyear Cord construction, all these advantages of the big pneumatics have been made most intensely practical for farm service.

Farmers' accounts of how motorization and pneumatics have saved labor, crops, time and money, can be obtained from The Goodyear Tire & Rubber Company, Akron, Ohio, or Los Angeles, California.

GOODYEAR
CORD TIRES

# BEEMAN

## Where a Horse Can't Go

Under low-hanging branches and through close quarters generally, a Beeman tractor will pull your plow, cultivator or harrow. Get a Beeman for all your one-horse jobs.

Distributor: Northern California
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Distributor: Southern California
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## MADEWELL WELL CASING

Noted for It's Smoothness and Evenness of Fit

For strong, smooth, perfect-fitting well casing, specify Madewell.

—Made from Hard Red or Galvanized sheet metal.

—Joints fit perfectly, because they're built to an exact standard.

—Made in all sizes, single or double.

**Write for Catalogue C**

It describes Madewell Well Casing and other Madewell Sheet Metal Products in detail.

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## Why So Widely Used?

There is only one reason why Kow-Kare (formerly called Kow-Kure) is so generally used by dairymen all over the country.

Merit, proven time after time, in treating the ills of milking cows is the one answer.

By assisting the digestive and genital organs to function normally Kow-Kare throws off diseases and is a reliable treatment for Barrenness, Abortion, Retained Afterbirth, Scouring, Lost Appetite, Bunches.

Buy Kow-Kare in 70c and $1.40 packages from feed dealers, general stores or druggists.

DAIRY ASSOCIATION CO
Lyndonville, Vt.
KOW-KARE and BAG BALM distributor for California,
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San Francisco, Cal.

## CALF PROFITS

Are you getting them? Calf profits mean more to you now than ever before.

BLATCHFORD'S CALF MEAL has been known since the year 1890 as the complete milk-substitute. Costs less than half as much as milk—prevents scouring—promotes early maturity. Sold by dealers, or direct from us.

Write for New Data *See actual figures showing how to increase your calf profits.*
COULSON CO. - - - Petaluma, Cal.

## RABBITS

$6,000 YEARLY. Raise Furbearing Rabbits for us in your back yard, spare time. We furnish stock and pay $3.50 to $7.50 each for all you raise. SUNSET FUR CO., 507 Lankershim Bldg., Los Angeles, Cal.

## Cured His RUPTURE

I was badly ruptured while lifting a trunk several years ago. Doctors said my only hope of cure was an operation. Trusses did me no good. Finally I got hold of something that quickly and completely cured me. Years have passed and the rupture has never returned, although I am doing hard work as a carpenter. There was no operation, no lost time, no trouble. I have nothing to sell, but will give full information about how you may find a complete cure without operation if you will write to me, Eugene M. Pullen, Carpenter, 43-G Marcellus Avenue, Manasquan, N. J. Better cut out this notice and show it to any others who are ruptured—you may save a life or at least stop the misery of rupture and the worry and danger of an operation.

IF YOU HAVE ANYTHING TO SELL TRY THE ORCHARD AND FARM CLASSIFIED COLUMNS.


# Too Much Bologna; Dairy Industry Suffers

*When is a bull not a bull? When he's bologna! And a great many good dairy bulls are being sacrificed and made into sausage which should be retained for breeding purposes.*

THE "gentle bull" takes his place beside the "gun that wasn't loaded" as one of the contributors to human misfortune. It doesn't pay to take chances with any bull, no matter how young or how well trained. Yet many needless sacrifices are made because owners of good bulls find them becoming dangerous and unmanageable.

The unfortunate part of the situation is the fact that the bull is most likely to become dangerous as he grows older, and yet is most valuable for breeding purposes when he is matured and in his prime. Selling bulls as soon as they lose their gentleness results in the loss of great numbers of valuable sires. It means that breeders must forever rely on untried sires, and it is merely a matter of luck whether the resulting offspring is good or not.

### A Characteristic Quality

"Dangerous as a mad bull" is a proverbial phrase. Yet it must be remembered that such madness is a characteristic quality of bulls. Not only some bulls, but all bulls, are subject to outbursts of violence from time to time. These do not necessarily signify either craziness or anger on the part of the bulls, but often simply the aggressiveness which indicates vigor and good health. What is called ugliness, therefore, may be mere playfulness.

On the other hand, sometimes a bull may become really ugly, showing a desire to fight and destroy. But whether the animal's behavior is due to playfulness or bad temper makes no difference. In either case, the bull should not be trusted, but a proper pen will make it unnecessary to lose a valuable bull by selling him for beef simply because of his refractory conduct.

### Good Pen Needed

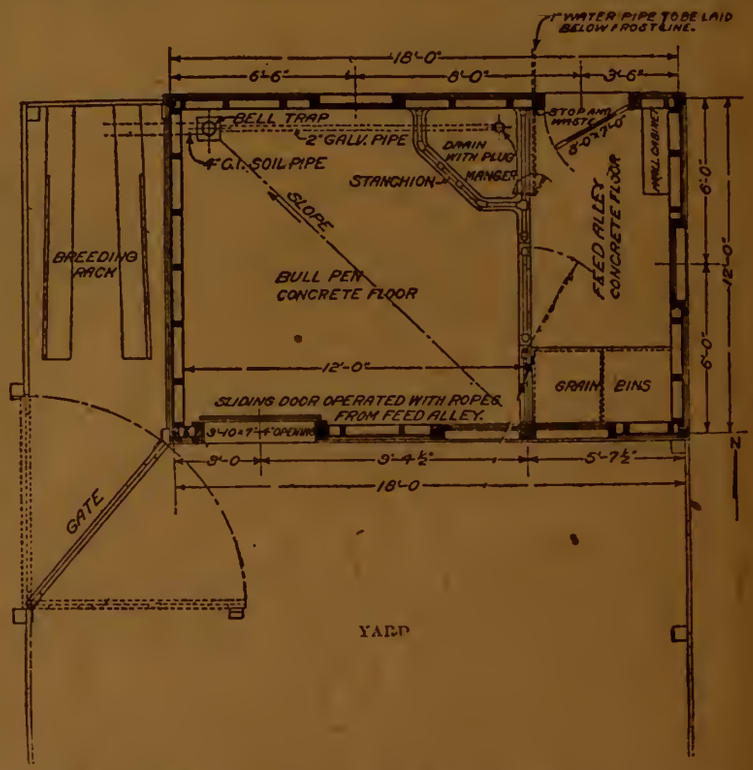
This characteristic merely means that the bull should be kept and handled in such a way that the owner (or keeper, if it is in a bull association) is not exposed to attack. This object can be attained by keeping the animal in the right sort of house and pen. Such a pen is illustrated.

It is necessary to have a pen which will make it easy and reasonably safe for the breeder to keep and care for the fiercest bull by avoiding the necessity of coming into contact with the animal without the protection of a fence.

No bull is to be trusted. The pen which has been devised lessens the danger to such an extent that the question whether a bull should be kept in service may be decided on the ground of his value as a sire and not with reference to his temperament.

### Essential Features

The essential features of the plan are (1) to feed and water the bull without entering his stall; (2) to have a large yard for exercise, built so that he can not break out, but of easy exit for anyone going into the yard, and (3) to have an adjustable gate, by means of which the bull can be turned into his exercise yard, into the breeding stall or into the stable, and held there at the keeper's will, without the keeper having to enter the inclosure. Then, when the bull is let out into the yard he can be shut out there while his stable is cleaned.




When a cow is placed in the breeding stall, the handling of the bull can all be done from the outside, where the keeper is entirely safe. If it is deemed desirable to keep the bull in one end of the cow stable during the winter, the specially constructed yard can be built on the outside of the cow stable.

This style of bull pen keeps the keeper safe. It also keeps the bull safe from the butcher. Detailed plans for the safe-keeper pen will be supplied by the Dairy Division, United States Department of Agriculture, Washington, D. C., to those who have bulls in charge. Factors of safety in fencing the yard also are pointed out in connection with these plans.

## How to Give Medicine to a Horse

WITH the left hand insert the bottle in the horse's mouth above the tongue, holding its head as high as possible. Do not hold its tongue or the horse will be unable to swallow. Press the thumb of the right hand against the jugular vein long enough partially to shut off the wind, then release, and the horse will be forced to swallow. This can be done a number of times and if the horse is gentle, one can easily can force him to swallow a large amount of liquid in a short time.—E. M. Cory, San Francisco.

The Home Maker

# Get a Canadian Farm *from the* CANADIAN PACIFIC

THE Canadian Pacific Railway offers you a great opportunity to own a farm home. Many of these farms have paid for themselves with the first crop. Out of its last big block of reserved farm lands you can buy your farm under a plan of long term easy payments that is remarkable in the history of farm investments. The country is ideal for mixed farming as well as grain growing. Later, the same lands can be bought only from private owners, and naturally the work of cultivation and improvement will make the prices higher. We urge investigation now. Never again on the North American continent will farm lands be offered at prices so low.

## Your Last Big Opportunity

Until this land is disposed of the Canadian Pacific Railway offers you the most wonderful opportunity in the world to own a farm, achieve independence and grow rich in Western Canada. It offers to sell you farm lands in the rich open prairies and fertile park lands of the Lloydminster and Battleford Districts of Central Alberta and Saskatchewan or in Manitoba for an average of about $18.00 an acre.

## Twenty Years to Earn and to Pay

ALL YOU have to pay down is 10 per cent of the purchase price. If land is purchased under settlement conditions, no further payment of principal until end of fourth year, then sixteen annual payments. Interest is 6 per cent. This means that twenty years is given you in which to pay for your farm home and it may pay for itself with one crop.

If you would prosper on a rich Canadian farm, as have thousands of others, this is the time to make your investigation. There is no easier plan of securing a Canadian farm than under the liberal conditions of the Canadian Pacific. In Central Saskatchewan, Seager Wheeler grew the world's prize wheat. At Lloydminster the world's prize oats were grown. Here in this fertile country is the final opportunity for you to acquire a farm that will make you independent.

### No Taxes on Your Improvements

The system of taxation encourages your success. There is a small tax on the land—seldom more than 20 cents an acre for all purposes—but there are no taxes on your live stock, buildings, improvements, implements or personal effects. Good markets, modern schools, roads, churches, amusements, make farm life desirable and attractive.

### No Sale Without Investigation

You must be satisfied and have every question answered before taking up your home. Investigation is invited and made easy. Upon request we will arrange all details of an investigation trip to suit your time and convenience.

Ask the Canadian Pacific about Canada — CANADIAN PACIFIC RAILWAY

**BUREAU OF CANADIAN INFORMATION**

The Canadian Pacific Railway will furnish you with the latest reliable information on all phases of Canadian agriculture and industry from their Reference Libraries in Chicago, New York and Montreal. No charge or obligation attaches to this service. Business organizations and others are invited to make use of it. Write or call at the Bureau of Canadian Information at 165 E. Ontario St., Chicago 1270 Broadway, New York, or 335 Windsor Station, Montreal, P. Q.

**Special Rates for Homeseekers and Full Information**

Special railway rates for homeseekers make inspection easy. You can also secure, free, illustrated pamphlets, full of facts and government figures about land values, acreage yields, climate, Western Canada's farm achievements of the past and its possibilities of future development, and setting out in detail its plans of selling farms to settlers on easy payment terms. Write today.

M. E. THORNTON, Supt. of Colonization

**CANADIAN PACIFIC RAILWAY**

961 First St. E., Calgary, Canada

**Don't Delay Your Investigation**

This announcement calls attention to the last great block of the Canadian Pacific Reserve farm lands. There is time for thorough, careful investigation. But there is no time for delay in deciding to make that investigation. The forehanded man will act today.

M. E. THORNTON, Supt. of Colonization
CANADIAN PACIFIC RAILWAY
961 First Street E., Calgary, Alberta

I would be interested in learning more about:

[ ] Farm opportunities in Alberta, Saskatchewan and Manitoba.
[ ] Irrigation farming in Sunny Alberta.
[ ] Special railway rates for homeseekers.
[ ] Business and industrial opportunities in Western Canada.
[ ] Town lots in growing Western towns.

*My Name* .....

*Address* .....

*Town* ..... *State* .....

# MILK RECORDS

## Are You Keeping a Record of Your Cows?

Orchard and Farm is offering a milk record sheet that simplifies the keeping of milk records. The record sheet is 10x17 inches and each sheet includes a record of the morning and evening milking of 10 cows for 31 days, printed on heavy cardboard, which can be tacked up anywhere convenient. Following is the prices of the milk record sheets, mailed postpaid, while present supply lasts.

**Prices**

Postpaid

10 Sheets .....50c
25 Sheets....$1.00
100 Sheets...$2.50

Orchard and Farm, Los Angeles, Cal.

Enclosed find $..... for ..... of your large milk record sheets for 10 cows.

Name .....

Address .....



# ARE YOU PROUD OF YOUR HOME??

**Increase Its Value and Beauty**

**Plant Ornamentals and Shrubs**

There are so many you can plant at a nominal cost that will afford a wealth of beauty and feeling of pleasure and admiration for many long years. Our descriptive catalog will help you select and plant them. It's yours for the asking. Come and see our shrubs growing—open every day, including Sundays.

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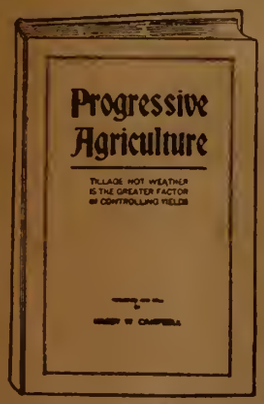


# MONEY-SAVING and MONEY-MAKING METHODS

**Tillage, Not Weather, Controls Crop Yield**
**Campbell's Progressive Agriculture Tells How**

Any farmer with ambition to make the most of his labor and realize the greatest returns for his investment will find in this volume a priceless guide for Dry Farming.

It is needless to say that the advantages to be gained from a single practical idea, taken from this book and put into practice, is worth many times the small expense incurred adopting the more approved methods. Planting without proper preparation of soil; planting at wrong time or in wrong way; wrong methods in cultivation, are common occurrences which a better knowledge of these subjects could easily prevent. It is poor economy indeed to save five dollars at the expense of a hundred.

**ONE PRACTICAL IDEA TAKEN FROM THIS BOOK WORTH MANY TIMES THE COST OF ENTIRE VOLUME**

**ORCHARD & FARM, LOS ANGELES, CAL.**

Enclosed find $1, for which send, postpaid, "Campbell's Progressive Agriculture," including one year's subscription to Orchard and Farm. It is understood my money is to be returned if not fully satisfied.

Name .....

Address .....


# Luther Burbank on "Pollination"

(Continued from the December Number)

PLANTS, in their efforts to prevent such insects as cannot be of aid to them from collecting nectar, often develop long, tubular blossoms, so that insects without a long proboscis cannot reach the nectar. But various other plans are adopted; sometimes, however, plants are outwitted by insects, as some bees learn to break open the side of the blossoms to secure the honey in this felonious way, but after a time such plants often acquire a method to overcome even this. Plants also frequently by natural or artificial selection develop spines, bristles, sticky exudations, nauseous bitter juices and other means for preventing insects from eating their leaves, especially the young, tender ones.

### Habits of Night Flowers

A careful observer will notice that night-blooming flowers are almost invariably white or yellow. The reason why yellow and white flowers are the only ones that bloom exclusively in the night is apparent; i. e., that the efforts of the plant to do its part may not prove ineffectual, for these are the only colors that can be seen in the dark.

Besides the distinguishing colors of flowers, there are also other guide-marks on most flowers to attract or direct the bees toward their deposits of nectar. Therefore the bees and the flowers have for ages grown up together, each depending upon the other for existence. The plants, being unable to move, have made a contract with bees to furnish a certain stipend of nectar and a portion of pollen for the service they may render in carrying the pollen from plant to plant.

*Male and Female*

[From Luther Burbank's collection of color photographs.]

The plants that depend upon nectar-loving insects, usually possess a pleasing fragrance, but some flowers are dependent upon flies. These plants usually have a carrion-like odor, and their color, as well as the odor, often resembles a piece of decaying meat.

### Unattractive for a Reason

One of the Arums *(Arum dracunculus)*, often called the "Carrion Lily," has flowers resembling in color and general appearance a piece of liver, or an over-ripe beefsteak, and their odor is exactly like that of decaying flesh, so offensive that the plants cannot be tolerated near the home during the blooming season, although the flowers are striking and rather handsome. So far as I have observed, bees do not work upon this plant, though on a warm day the big, blue-bottle flies are thick about it, and the plant is nicely adapted to entertain and entrap them. If a person can overcome his repugnance to the odor of the plant, and will cut open one of the blooms he will find a large, *bottle-shaped cavity with numerous insects striving to gain release from their confinement;* and after a time most of them will succeed in effecting an escape, first having been thoroughly dusted with pollen. Evidently not finding the food that was sought, the insect will visit another flower, and thus carry the pollen from plant to plant. Not having a knowledge of these facts, one would very naturally conclude that the flowers were specially constructed to secure self-pollination, although the facts show just the opposite to be the case.

### Even Attract Buzzards?

In some of the standard works on ornithology it is stated definitely that the condor and the turkey-buzzard are guided wholly by sight, not having the sense of smell developed. This statement is scarcely warranted by the facts. A number of years ago while raising a lot of these Arums, my men reported that they had seen the buzzards sailing in diminishing circles, at last suddenly alighting beside the plants and after investigating them for a moment, flying away, apparently much disgusted in not finding what they had been led to believe was awaiting them. I could hardly accept this statement until on two subsequent occasions I saw similar occurences myself.

*Rafflesia Arnoldi*, another plant of unusual interest, is met with in Sumatra. This grows as a parasite on the roots of a species of grape, and the enormous blossoms, often three feet across, are said to be the largest of all flowers. These are blood-red in color, streaked with flesh-colored veins. This odor is very offensive, which, taken with the suggestive odor, makes an uncanny sight in the tropical forest.

### Work of Humming Birds

Wind and insects are the chief agents in pollination, but humming-birds play an active part in this work, especially with plants of Amaryllis, Crinum, Gladiolus and others of the Liliaceae. Many plants are entirely dependent upon them, their flowers being long, trumpet-shaped, and usually of reddish color. Some plants are pollinated by bats, and even snails and slugs, with their slow, creeping movements, seem age to assist Nature in this work, as they go about in search of food.

*of the Plant World*

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The submerged aquatic plants rely upon water for the transportation of the pollen from the stamens to the pistil. Among these plants we find in place of the little, rounded pollen-grains, as produced by terrestrial plants, long, slender, thread-like filaments.

The devices Nature has developed to effect pollination by insects through different forms, colors and odors, are almost innumerable. Every family of plants has a different type of flower and each species differs, at least in some degree, from all others. Pollination is of the greatest importance in the plant-world, and the study of Nature's many wonderful methods of bringing this about are most fascinating. Understanding of its value has brought the fruit grower and the honey producer together and in many of its branches has revolutionized horticulture.

# Bloodless Revolution

(Continued from Page 5)

county exchanges will be limited to farmers and growers and the operating authority will be under control of a board of directors and qualified employed managers. At the present time twenty-one county farm bureaus in the State either have completed their exchange organizations or have their plans under way. The management of local exchanges will be through departments, each in charge of a specialist for the commodity concerned, the departments added being dependent upon the volume of business developed.

The Tri-County Exchange now operating in the San Joaquin Valley has, among other activities, employed a grain specialist and a special manager for handling veal livestock. This latter department is at present handling over 150 veals monthly, the calves heretofore having been almost a complete loss to the dairy farmer.

The State exchange is being created by a federation of the county exchanges, each county being represented by a delegate member. Articles of association as a co-operative, non-stock, non-profit corporation, permitting the State exchange to function, have been adopted and operations should soon begin. The State exchange will maintain a departmental organization comparable with the local units and will be under the management of qualified specialists. The State exchange will be financed through the affiliated local exchanges and will function as their agency. Plans for financing the various departmental divisions are well under way.

A financial interrelation between the exchanges and the elevator corporation will effect a storage, elevator and marketing organization, adequately protected for giving service to the grain industry and to the farmer selling his products and buying his supplies.

The field program of the Elevator Corporation is well under way, and interest already developed gives assurance that terminal capacity will be more than met.

The executive officers of the Elevator Corporation are George H. Sawyer of Waterford, president; J. A. Kilkenny of Dixon, vice president, and W. H. Heileman of Berkeley, secretary-treasurer.

The various associations created, it must be appreciated, are an outgrowth of the stress of the times. Lack of organization and business equipment by the producer for the successful delivery of food, fabric and the necessities of life to those who are dependent has created economic conditions which threaten the foundations of agricultural industry.

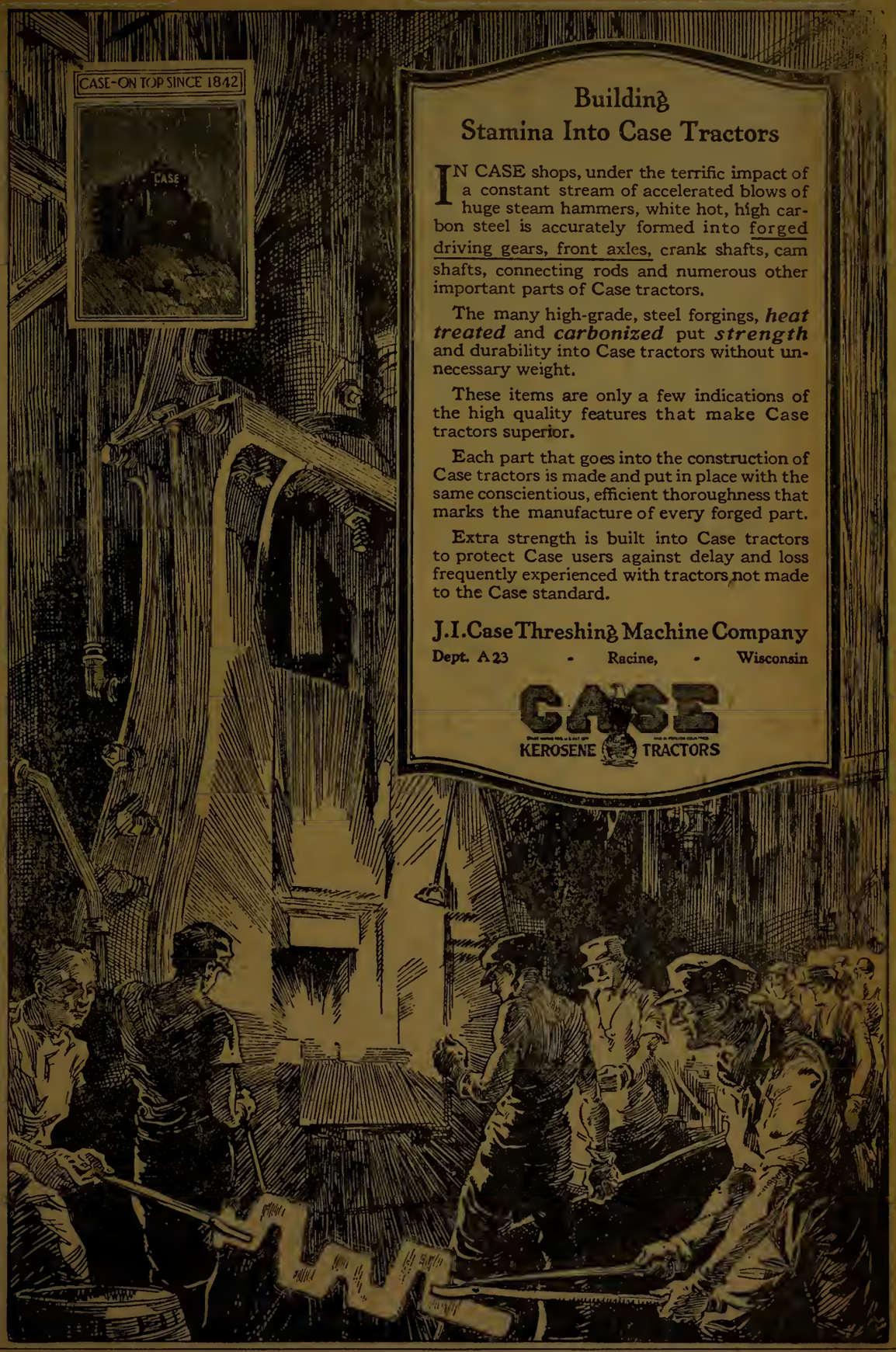
There is an economic influence freighted with grave responsibilities underlying the rather comprehensive program herein briefly outlined. It is not a presentment of high finance in any sense, but the entire problem has been approached as an initial effort to better welfare of the two extremes; namely, the producer of foods and the ultimate user. This, we believe, will be accomplished.

The American Farm Bureau Federation, with which the California federation is affiliated, has been extremely active during the past year in the development of a National marketing policy more closely allied to agriculture. Primarily its "Committee of Ten" came into California during August this year for the express purpose of studying our co-operative concerns. Later President Howard of the Amelcan Farm Bureau Federation appointed his outstanding "Committee of Seventeen" to develop a National co-operative marketing policy. The California program is mindful of the National project under way and ultimately will become a unit in whatever the "Committee of Seventeen" may develop.

Coming, finally, is the International Agency, which has been announced during the past few days and which seeks the creation of a billion-dollar corporation for distributing American farm products into world markets.

Developments have advanced sufficiently for the forecasting of a county, State, National and international program for the distribution of agricultural products, and while the journey may be long, we have a right to feel that a better day is in sight for meeting the needs of our greatest agricultural economic problem. The accomplishment of our object unquestionably will benefit, alike, consumer and producer.

"What's the richest meal you can think of?"
"Silver fox eating a golden pheasant!"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# EDITORIAL DEPARTMENT

## Timely Topics among Farm Folk

### Lessons From Athletics

A quick start may win the race.

Many a touchdown has been made n the other fellow's fumble.

Two strikes often precede a home ın.

No pole-vaulter ever broke a record y thinking what might happen if he roke the pole.

### American "Kidding"

ET us be thankful for the American spirit of banter! No other country in the world, it is said, akes so much of repartee as ours. erhaps that is one reason for our ıtional contentment and good nare!

There is a familiar comradeship out the "give and take" which marks r everyday intercourse with fellowings; it is seldom biting or irritatg; usually stimulating and refreshg. In the business world especially places wholesome men and women on a more equal plane.

And surely there is no better exıple of true wit than the swift inchange of extemporaneous remarks ıt one may overhear, for example, ıen "the bunch" get together after ıool, or the farm workers halt for ɔrief breathing spell, or John Jones ·ets Bill Brown, his neighbor, on y American street or road.

'Kidding," of the harmless, genial, personal sort, is an American instiion which we may well foster. True, occasional visitor from across the nd may receive the impression that are a nation of quarrellers, who for nc unaccountable reason, mix our ısphemy with smiles. But as long our hearts are warmed and our ıins refreshed by denouncing in blic each other's minds, morals and ·ntality, let us place our own valtion upon our own peculiar brand comradeship!

Here's to the beloved American idder," whose sarcasm never bites, d whose careless words merely ɔak his big heart and warm fellowıp!

### "Rag Picker Bill"

WITH the farmers still burdened with their wool clip of last spring; with the ·rehouses of the world choked with ır billion pounds of unused virgin ol; with the popular demand for gin wool cloth artificially diverted certain textile manufacturers from wool grower to the rag picker, it ıbsolutely essential for the protecı of the wool growers that the ·nch-Capper Truth in Fabric bill be cted as soon as Congress onvenes."

'his is the ringing assertion of sident Walker of the National ·ep and Wool Bureau, which has n waging a long and determined fight for the abolishment of deception in woolen manufacture, and which has secured the support of the American Farm Bureau Federation and other influential bodies.

Last March the Interstate and Foreign Commerce Committee of the House of Representatives held a hearing on the bill, but adjournment was taken before the measure was reported out of committee. This month a hearing on the measure will be held before the Senate Committee on Interstate and Foreign Commerce. It is to be hoped that some favorable action will result.

While the use of shoddy is not the only cause for the present stagnation of the wool market, the harassed producers certainly are entitled to what comfort or protection they can secure from the passage of the "rag picker bill."

---

"I used to be very critical of other folks," said Uncle Wiseacre, "until one day a young man I had called a lazy loafer sold a patent, comfort tractor seat he invented for more than I had made by a year of hard work."

### What Live Stock Producers Are Thinking

IN THE first place, the subject is a bit misleading, for we woudd not dare to print what many breeders and feeders are saying, much less what they are thinking. In a recent market letter, a prominent Chicago Live Stock Commission firm, in ironical vein, advised its customers who are feeding hogs, to butcher their breeding ewes and feed them to the hogs. This advice was sustained with arguments to show that tankage was selling at $80 to $90 a ton, whereas, ewes were plentiful on the market at a price which would amount to $50 to $70 per ton.

"The sheep, therefore, make the cheapest feed you can buy for your hogs," asserted the writer of the circular, "and in addition you will have the pelts, although there does not seem to be much demand for them now." This firm sees little for the sheep and wool producers to be thankful for this year, but a few are found among the live stock men who view the situation with stolid optimism. The live stock situation is indeed of intense interest to California.

Recent reports show that this State has 6,000,000 head of cattle, sheep, hogs, horses and mules. These animals are valued at $250,000,000. The value of California's dairy products alone reached, during the past year, $75,000,000.

The dark cloud of catastrophe is hanging over many stockmen today. The well-being of California and the entire Nation demands that, if possible, they be given some ray of encouragement. The farm associations have advanced a number of practical remedial suggestions. These must be put into effect quickly.

### Ben Gonnadooit Says

*"Start th' New Year right," is my advice, and which I am takin' myself. In th' first place, I am wipin' th' slate clean of all old debts by writin' each creditor that I ain't able to pay and prob'ly never will be, which is only fair becoz if anybody owed me anythin' I would allow them to do th' same.*

*Another thing—I bin spendin' consid'ble time here lately tryin' to find out why I lost so much money last year and I've come to th' conclusion its becoz I allowed my attention t' be divided too much. Therefore after this I'm goin' t' leave such household dooties as choppin' wood an' carryin' water entirely to th' wife, givin' my attention to solvin' farm problems.*

*This program otta give me a little more time for fishin', too, thus enablin' me to keep in good condition by a wise mixture of work and play, which, as ev'ry bizness man knows, is th' only way to keep fit.*

*I've been goin' to set down some other good resolutions, but here it is almost th' first of January and I ain't got any of my fall field work done yet. Therefore I reckon I'll have t' quit and put in a few days studyin' the weather charts. In that way I may be able t' figger out some plan fer doin' the work between rains.—Ben Gonnadooit.*

### "Educational Selling"

A GREAT, Western business institution, one which does a business with California farmers amounting to several millions of dollars annually, has adopted a progressive and interesting system of creating and holding trade. The method might be called "educational selling."

The keynote of the plan is to combine with the advertising and salesmanship, real, practical help for the customers. Every "ad" is carefully planned to convey a helpful message, a "how-to-do-it" suggestion. And most of these helpful hints represent the conclusions reached at great expense by the company's own research and experiment department.

Thousands of dollars annually is appropriated by the far-sighted directors of this concern for carrying on what might at first appear to be expensive, non-remunerative propaganda. "How can they afford to do it?" is the first thought of the casual observer. Investigation, however, soon shows that every dollar so spent is a "boomerang," returned tenfold in good will and increased trade.

### More Yellow Journalism

EVERY little while some representative of the metropolitan press engages in a series of frenzied editorial somersaults occasioned by a report that certain farmers are about to burn their corn for fuel or are feeding "perfectly good milk to their pigs while thousands of tenement babies are starving to death."

With due allowance for the fact that these outbursts very frequently arise through sordid efforts to attain sensationalism, where there is smoke there may be suggestion of fire.

It is true that Middle Western farmers actually have stated they might be forced to burn their corn for fuel. The reason, however, as recently pointed out by H. C. Taylor chief of the Office of Farm Management, United States Department of Agriculture, is that at present prices corn is cheaper fuel than coal. No one could blame the farmer for refusing to sell corn and buy coal when the money received would not buy the equivalent in fuel value.

When will the short-sighted editors of city newspapers learn that farmers have no base motives for the starvation of mankind? No farmer ever destroyed a crop that he could sell at a profit, and thousands again and again have sold at a loss rather than let the crop rot in the field or be fed to the pigs.

But if the rest of the Nation fails to appreciate the necessity of maintaining farm products prices at a satisfactory ratio with other prices, farmers, as Mr. Taylor has pointed out, may find it necessary to retrench in order to save their homes and protect their families.

**SOLVES FARM PROBLEMS**

"I should like to see your paper in every home," writes Mrs. A. Minton, of Laytonville, Cal. "We have been subscribers for several years and ORCHARD and FARM has been of great value to us many times. We simply could not do without it. We keep every copy of the paper and refer to back numbers many times in order to solve our farm problems, which otherwise would go unanswered."


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CONCISE CONTRIBUTIONS

On practical agricultural subjects are invited. Unavailable manuscript will be promptly returned if postage is inclosed. Preference is given to accounts of actual experiences, telling how, when, where, who and why.

## SOURCES of INFORMATION
*"The Fruit of the Tree of Knowledge"*

THE following new Government bulletins now are available and will be sent free upon request. Address Division of Publications, U. S. Dept. of Agriculture, Washington, D. C. Order by number.

FARMERS' BULLETIN

Sugar Beet Growing Under Humid Conditions ..... 568
Grain Sorghums—How to Grow Them..1137
Proso, or Hog Millet .....1162
Alsike Clover .....1151
Sugar Beet Seed Growing in the Rocky Mountain States .....1152
Aspen Borer and How to Control It.....1154
Tree Surgery .....1178
Essentials of Animal Breeding.....1167
Preserving Eggs .....1109
Incubation of Hens' Eggs.....1106

The California Avocado Association has prepared an attractive little booklet, giving a number of recipes for serving avocados in various ways. The price is 10 cents and copies may be secured through the secretary's office, Altadena, Cal.

### New Agricultural Books

Every botany student should be interested in Harshberger's new text book of "Pastoral and Agricultural Botany," which is a comprehensive guide to the study of useful and injurious plants. Many of the illustrations show the effect of plant poisoning upon animals, assisting the stockman in diagnosing such illness. The manual is published by P. Blakiston's Sons & Co., 1012 Walnut street, Philadelphia, Pa., and is priced at $4.00.

Of interest also to farmers is Edwin E. Slosson's new book, "Creative Chemistry," which discusses in popular style some of the wonders of modern chemical engineering, with special emphasis upon the manufacture of fertilizers. "Creative Chemistry" is published by the Century Company of New York City.

The regular monthly bulletin of the Department of Agriculture will be sent free to anyone applying to the department office at Sacramento.

## Jest Animals

*By Jason Wells*

*I GUESS I'm kind of foolish—*
*About animals!*
*I like 'em all around me;*
*Don't care if they surround me—*
*Jest dumb animals.*
*Jest sheep and mules and cattle—*
*(This may seem like brainless prattle)*
*But somehow I don't feel right*
*Unless I live in sight*
*Of some animals.*

*SOME folks jest hates th' smell—*
*Of animals.*
*Can't seem to bear to tech 'em,*
*Always sends th' dog to fetch 'em—*
*Down on animals!*
*But men and tastes will differ,*
*And a feller's spine is stiffer,*
*I've noticed, if he cares*
*For th' poultry, goats and mares,*
*And likes animals.*

*THERE'S no need to guard your secrets—*
*From animals.*
*They don't lie or double-cross you,*
*And they don't expect to boss you.*
*Good old animals!*
*I'll keep my sheep and cattle,*
*For they help me in life's battle,*
*And I'm here to say it pays*
*(If a feller knows their ways)*
*To keep animals.*

*A MAN'S more likely square—*
*Who loves animals,*
*And th' woman who likes biddies*
*Almost always loves th' kiddies*
*(They're jest animals).*
*Yes, the kingdom sure includes us*
*(Though this fact sometimes eludes us*
*In our daily round of strife.)*
*That our God likewise gave life*
*To animals*

(Concluded on page [illegible])


# CHANDLER SIX
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*The Chandler Touring Car*

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*Always install the combination*

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Do you realize there is a buyer for everything you have for sale, at the right price? Some of our subscribers need just what you can sell. An advertisement in Orchard and Farm brings buyer and seller together. The rate is 6 cents per word. This is a good investment if properly applied—not an expense.


In answering advertisements please mention ORCHARD & FARM.

# What Tractors Did for Johnson

By C. C. Tomek

FRED JOHNSON is one farmer who has turned his back on Dobbin and is plowing up the last horse pasture on his farm. He has decided that farming by horse power is too costly for him. Over $20 a day saved during plowing, seeding and cultivation is the record on this Lake County farm, established by the use of tractor power.

Beside this saving in working expenses, there is the crop sold from the hay and pasture land that formerly had to be reserved for feeding the work teams. What farmer ever cleared $250 from every acre reserved for horse feed? Yet that is what the adjoining 10 acres brought in this year on the Johnson ranch.

Two years ago Mr. Johnson bought a tractor and plowed up half of his bottom lands, seeding 10 acres to alfalfa. In this, the second year after planting, the season's crop of alfalfa hay from the 10 acres sold for $2500.

Hay sold, in his neighborhood, for as much as $45 per ton. He sold the crop in the field and had no commission or transportation to pay; his crop ran a little better than seven tons to the acre of cured hay. The top-notch price for hay—which in Lake County this season was much higher than city prices—is due to the long haul over bad grades and a very short local supply. Mr. Johnson cut and cured his hay so carefully that it was valued at a figure in excess of the average offered in the county. With all expenses deducted, the 10 acres showed a good profit in favor of power farming.

On this farm the use of power tools for working the land has effected a double saving: First, $20 a day in plowing and tillage; second, the sale of crops from land formerly needed to raise feed for horses.

"Money talks," said Mr. Johnson, "in favor of the tractor; that's why I am plowing up old Dobbin's pasture." Perhaps it is because many other farmers have made the same discovery that Lake County is said to have more motors per inhabitant than any other county in the State, and is constantly adding to its tractor equipment.

*Illustrating Tractor Efficiency*

*The arrow at the left shows the smooth, friable condition of soil plowed early with a tractor. The arrow at the right indicates the great, hard lumps resulting from later plowing, necessitated by inadequate power before purchase of tractor.*

## Are You Making the Most of the Woodlot?

FARMERS in increasing numbers are recognizing the value of the woodlot and deriving from their standing timber an attractive revenue. A recently compiled table shows the comparative fuel value of wood and emphasizes the importance of this "sideline":

| Kind of wood. | Weight per cord (pounds) | | Per cent heat value of one cord of wood as compared to one ton of hard coal. | |
|---|---|---|---|---|
| | Air Dry. | Green. | Air Dry. | Green. |
| Basswood | 2300 | 3700 | 48 | 42 |
| Paper Birch | 3400 | 4600 | 70 | 64 |
| Yellow Birch | 4000 | 5200 | 80 | 76 |
| Bur Oak | 4000 | 5500 | 87 | 80 |
| Red Oak | 4100 | 5800 | 83 | 76 |
| White Oak | 4300 | 5600 | 93 | 86 |
| Jack Pine | 2700 | 4500 | 60 | 52 |
| Popple | 2400 | 4200 | 54 | 47 |
| Tamarack | 3400 | 4200 | 72 | 70 |

For the timber owner who has not a large amount of wood or who must limit his first investment, a one-man, hand-power sawing machine, may pay a handsome interest on a small expenditure. If there is considerable raw material and help is available, it may be advisable to use a power drag-saw or other engine-driven equipment.

Modern wood sawing is a far cry from the old back-breaking methods of former days, when a very small pile of cordwood was the reward for a day's hard labor with axe and cross-cut handsaw.

## Watch the Alignment of the Belt!

"HI-YI! Stop 'er. That blankety-blank belt's off again." In these days of power-farming, how often have we all heard this call ringing out above the whir of engine and machine. And much valuable time generally is lost, not to mention the damage to the belt.

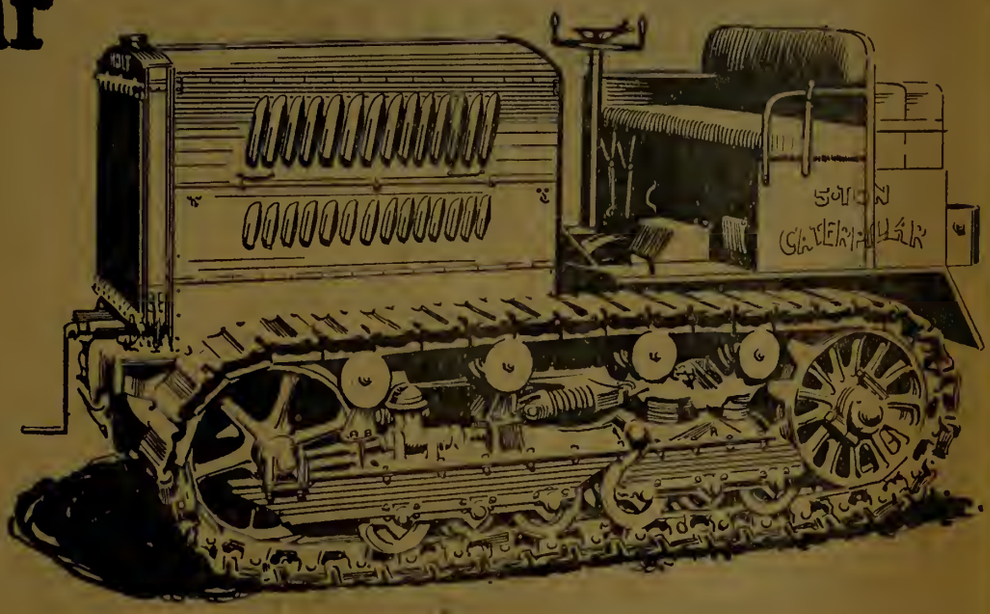
But in nine cases out of ten there is no occasion to "cuss" the belt. A belt will not continually run off the pulleys if it is properly aligned, unless there is something wrong with the pulleys.

But the mere fact that the belt "sticks" is not always an indication of good alignment. The only sure test is a taut string or careful sighting. Many a good belt has been ruined by side-draft and irregular alignment. To throw an unequal strain upon the belt means that its life is shortened and slipping troubles increased.

Some power users, especially threshermen, make a practice of setting the tractor out of line in order to compensate for wind. However, engineers agree it usually is better and less damaging to hold the belt in place by means of a smooth metal or wood stake.

Belts are very expensive and worthy of good care. And they do not deserve all the profanity that is heaped upon them!

# The Famous Five-Ton Caterpillar Tractor



## Now for the first time available for immediate delivery in this territory

Here at last is the tractor you've waited for—you who have wanted a tractor of smaller size and less power than "Caterpillar" 75 and 45 Tractors—you who have read of this tractor's achievements in France—who have heard of this tractor's wonderful power, stamina and versatility, from the boys who came back from "over there." It's the famous 5-Ton "Caterpillar" Tractor. During the war the Government's requirements took our full output. Since then, accumulated domestic and foreign orders have had to be taken care of. Now for the first time we are priviliged to offer the 5-Ton in this territory. But even now—for a time at least—the supply is limited. You must act quickly to secure immediate or early delivery. Write, phone, wire or call at the nearest Holt office without delay.

COMPARE, but don't CONFUSE the "Caterpillar" 5-Ton Tractor with other tractors. It is built to the standard of performance, not of price. It was designed by Holt engineers, in conjunction with other foremost automotive engineering talent of the world at our Government's disposal during the war. It has successfully met the most severe requirements that any machine has ever been subjected to, on two continents, in all classes of work—farm work, contracting, freighting. New York City recently ordered 50 of the "5 Tons" to solve its snow-disposal problem. There's not an experimental or untried feature in its entire construction. It has proved—conclusively proved—its superior merit. And the result is found in its unfailing, dependable, economical and trouble-free performance. That means farm work done quickly, properly, without delay—and *at lowest cost per horsepower-hour.* The purchase of a "Caterpillar" Tractor is an investment—safe, sure and productive of liberal returns.

There's only one Caterpillar Holt builds it

# The HOLT

**Manufacturing Company**

**Stockton, California Peoria, Illinois**

**Kirstin One Man Stump Puller**

Here's the Puller that you and thousands of others have long been waiting for. Ten thousand now in use. Letters from everywhere tell of sensational results. Pronounced a big success by Government Officials, University Experts and Land Clearing Contractors. Pulls ordinary run of stumps or trees out of the soil so easy—it's almost play. One man can clear an acre a day—costs about 4c a stump. Think of clearing land so cheaply. Think of pulling all your stumps by hand—and alone—no horses or extra help required—a stump every 3 or 4 minutes. It's true, every word of it. The Kirstin is

**The Quick, Cheap, Easy Way to Clear Your Land**

No other stump puller is so economical to buy or so easy to operate. Just a few pounds pull on the handle means tons on the stump. When stump starts, throw machine into high speed and out comes the biggest stump, roots and all.

The Kirstin Pullers are remarkably easy to get into the field and easy to handle among the stumps, too. They do the work—where horses can't go. They do it cheap and stand up under hard usage, under all conditions.

Get all the FACTS. Learn about our Liberal Offer—our Actual 30 Days' Free Trial—3 Years' Guarantee, etc.

**30 Days' Free Trial!**

We call this an Actual 30 Days' Free Trial, because no matter when you order or when your Puller arrives, you can actually use it for 30 days before you decide to keep it.

If the Puller doesn't please you in every way—if it doesn't do the work satisfactorily and economically—it can be returned at our expense and every cent of your money will be refunded. In addition to this wonderful free trial offer we give you

**4 Easy Ways to Pay!**

If you like you can order on a No-Money-In-Advance Plan—Pay Cash and get discount—$10.00 Deposit Plan—or on the Installment Plan, which gives you 6 months to PAY. No other offers so liberal.

Now send for Free Book and read about the wonderful KIRSTIN Puller with the Single, Double, Triple Power Features. Any man would rather have a KIRSTIN with its money-saving and time-saving superiorities, than an ordinary puller. Get our Special Low Prices, Terms, etc., without delay.

*Write for Special Agents' Proposition!*

**3 Years' Guarantee Flaw or No Flaw!**

We guarantee perfect satisfaction or money will be refunded, according to our 30 Day Free Trial Offer. We further guarantee to replace free of charge any castings that may break—flaw or no flaw—within 3 years. The big, strong Kirstin organization is behind the guarantee. Send for copy.

**Get This Book FREE**

Read how farmers make $240.00 net profits on one acre, the first year. How others make $300 to $600 from a few acres of newly cleared land. Increases of 50 to 100 per cent land valuation are not unusual. The book is filled with letters telling all about it.

Book also gives full particulars of Kirstin Free Land Clearing Service—worth many dollars to any farmer. Contains pictures and describes all sizes and types of Kirstin Pullers—One-Man and Horse-Power Pullers. Get it NOW.

SHIPMENT FROM Escanaba, Mich. Atlanta, Ga. Portland, Ore. Sou. Canada

Get the Big Kirstin Book Free.

Makers of Stump Pullers:

A. J. KIRSTIN COMPANY, 286 East Morrison St., Portland, Ore.



"Groz-It" Brand

**Pulverized Sheep Manure**

IN BAGS OR IN BULK

NOT LIKE ORDINARY MANURE

"Groz-It" is well aged, dry, free from weed seed and foreign matter. Odorless. Can be applied with a drill.

A complete fertilizer. Cheap and efficient.

Minimum Guarantee.

2.25% AMMONIA

1.25% PHOSPHATE ACID

3% WATER SOLUBLE POTASH

1 ton is equivalent to from 5 to 7 tons ordinary barnyard manure.

CALL OR WRITE

**Pacific Manure Fertilizing Company**

429 Davis St., San Francisco, Cal.



**Purviance One-Man Leveler**

The PURVIANCE has made good. Sold on money-back guarantee. We will ship anywhere C. O. D. If not entirely satisfactory return to us, freight prepaid, and full purchase price will be refunded. Order a PURVIANCE now and get your leveling done on time.

6 Ft. $225.00 F. O. B.
8 Ft. $275.00 Stockton

J. M. CONLEY CO., Inc.,
417 E. Weber Ave. Stockton


# SYSTEM
## in shop office and field

### Why a Map of the Farm Is Valuable

JUST as the modern general would not think of attempting a field campaign without the aid of topographers and maps, so the producer who realizes the value of a farm map will come to rely upon it for much practical help.

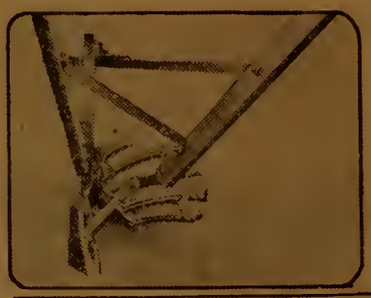
The map should be a combination of topography and survey; that is, it should show the location of hills, woods and streams as well as surveyed lines, roads and fence lines. Buildings, of course, should be indicated.

Of first importance is to number the fields. Particularly is this valuable on a very large ranch, where it is much easier to direct the help if the fields are numbered. This practice also assists in following a selected crop-rotation.

Regular study of such a map usually will suggest improvements, such as aligning of fences, combining of irregular fields, salvage of waste land and other beneficial changes. One farmer upon going over his map found that by diverting the course of a small stream he could add two acres to a valuable field, and a little figuring showed him that two years' crops would pay for the work. Strange to say, although he had spent hours in the field, the suggestion did not ocour to him until he drew up a map.

A map is of great value to the orchardist and may be so complete as to indicate each tree, which may be numbered for the keeping of disease and production records.

By all means, see that your farm is "on the map."—Albert J. Mason.



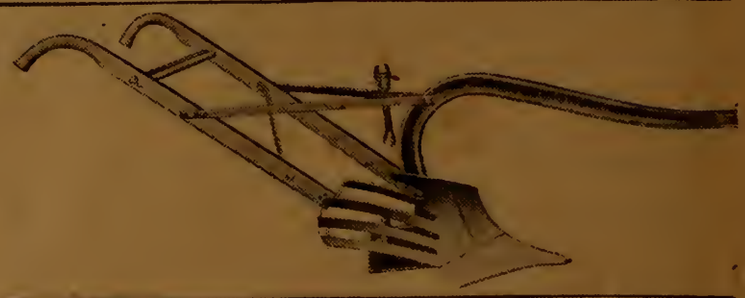
### "Slat" Plow for Sticky Soils

FREQUENTLY in carrying on farm work, it is necessary to "make things do," which are not just exactly suited to the job in hand. Sometimes, however, it will be found that the purchase of the proper tools or implements is really an economy.

We have struggled for years with a certain piece of land that was always sticky at plowing season. It seemed that no mouldboard plow, whether chilled or steel, would scour.

Finally we determined to try a "slat mouldboard," and soon found that our troubles were over. It stands to reason that when less surface is offered the wet, sticky gumbo, it is more likely to slip by. The "slat" plow, moreover, is very satisfactory for ordinary soils, especially soddy types, and, therefore, need not be charged up with a great deal of "overhead."

The draft is much lessened, and it invariably "sheds" easily. It also is superior, we have found, in pulverizing qualities.—Albert J. Mason.



### That Bothersome Hose

IN A certain dairy barn, where a rubber hose is much used for cleaning, the owner, long annoyed by having the hose underfoot in the dirt, where it was damaged and in the way, conceived the idea of connecting it overhead.

A water pipe was run to a point higher than the door and the hose attached. It then was coiled around a drum which was fitted with a spring. The drum, acting in somewhat the same manner as a window shade roller, keeps the hose neatly in place and out of the way, by automatically winding it up as it is released. The nozzle always hangs within easy reach, and no more of the hose in unwound than is being used. The spring is not strong enough to hinder use of the hose. The drum was made of an old keg fitted with a long, heavy coil spring.

### Light in Silo

THE following plan, adopted by a certain dairyman, will be appreciated by the owner of a dark or poorly lighted silo: His silo is constructed with rows of windows just under the roof and another row in the cupola as well as single windows in the shaft connecting the silo with the building. A large electric dome light, connected with the farm lighting circuit, which may be switched on from the barn, is placed in the cupola, flooding the interior with brilliance. Since the silo is filled through a manhole below the cupola, this light is never in the way

**Would Not Miss a Copy**—"I have read ORCHARD and FARM for three years and would not miss a single copy."—O. J. S. Harlan, Irvington, Cal.

### Lifting With a Tractor

ONE man with a tractor and simple equipment can move and handle very heavy objects. A resourceful power farmer wanted to move a heavy block of stone. First it was necessary to pry up one side in order to get skids under the stone.

The ends of two heavy planks were placed under one edge of the stone, holes having been dug for the purpose. Under each of these planks and close to the stone slab was placed a good-sized rock to hold the plank up in the air. Two more heavy planks were rested upon the elevated ends, and the tractor was run onto and up the latter planks.

The weight of the tractor, forcing down the ends of the first planks, with the stones as fulcrums, formed a powerful pry, which raised the edge of the stone so that skids could be inserted under it.

**Shows Its Superiority**—"I have been a subscriber of ORCHARD and FARM for two years and consider it the best farm paper printed in the West. You are doing a great work to build up this part of the United States."—S. Jackson, Tehachapi, Cal.

# Big Puzzle Contest Ends

## 1586 IS THE CORRECT SOLUTION

J. R. COLBURN of Washington, D. C., the designer of the puzzle chart, and the originator of the puzzle contest, guarantees this number to be correct with his affidavit and offers $500 reward to anyone who can prove this number incorrect.

More than fifty having secured this solution proved conclusively that this number is correct.

All those who submitted 1586 as the correct solution of the circle puzzle are entitled to submit a solution of the second problem to decide ties. As more contestants are tied with the correct solution of the first puzzle than there are prizes offered, all those who submitted any other than the correct solution are eliminated. Only one solution to problem number two may be submitted. Once submitted the solution can not be changed.

NOTE: All contestants who solved the first puzzle correctly receive the second problem by first-class mail. However, the winners were not determined in time for publication in this issue. The 50 winners and a copy of the winning chart will be published in the February issue. No information will be given out previous to that time.

**Extracts From Rules of Circle Puzzle Contest**

In the event of ties, a second puzzle will be presented for those tied to solve.

Contestants will be allowed one week in which to work the second puzzle.

As many prizes will be reserved as there are contestants tied on any solution before any prizes are awarded for a less correct solution.

# THE SECOND PUZZLE TO DECIDE TIES

81 17 35 55 96 46 97 79 90 73 83 19 76 19 37 22 13 69 63 89 81 17 36 28 41 16 61 52 13 31 31 61 51 61 41 91 61 51 61 41 31 51 41 81 71 41 41 81 41 14 41 33 88 54 87 11
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39 79 48 92 44 49 72 99 11 48 77 73 79 36 87 94 18 86 53 66 87 72 36 97 67 63 87 39 74 39 76 53 91 86 31 28 86 33 99 93 69 45 19 24 66 88 94 13 81 26 67 55 18 81 53 79
13 25 61 12 33 24 22 53 16 29 63 79 22 99 65 43 51 80 72 24 73 34 22 39 89 91 46 63 61 41 21 91 81 71 21 81 41 84 61 32 68 19 76 42 66 99 83 61 96 22 41 78 55 61 77 27
83 29 33 87 52 16 73 55 89 37 75 28 91 29 23 23 56 63 21 38 29 96 43 26 85 57 99 81 79 19 81 11 79 83 94 35 99 18 37 91 79 33 38 91 13 93 66 33 63 24 77 33 66 94 49 91
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Our circle puzzle contest, which ended December 20th, has been one of the greatest and most interesting competitions ever conducted by a farm paper.

Thousands of our subscribers have shown their interest by participating; we are very proud of the outcome and our only regret is we cannot send every single subscriber entered a handsome prize.

More than fifty have submitted the correct solution; therefore, they will be required to solve the second problem to decide ties, which is presented herewith.

The rules of the circle puzzle state, "As many prizes will be reserved as there are contestants tied on any solution before any prizes are awarded for a less correct solution." Therefore, all those who submitted any other than the correct solution are eliminated.

All those who submitted 1586 as the correct solution received the details of the second problem by first class mail. If your solution happened to be 1586 and you did not receive your letter advise us at once.

Full details regarding the contest will be published in the February issue, together with a picture of the winning chart.

Owing to the tremendous task of going through the correspondence, puzzle charts and awarding of the prizes, no information will be given out previous to publication.

We take this means of thanking all who participated in our fourth annual puzzle contest for their support and it [illegible] with great pleasure that we award [illegible] prizes to the fifty [illegible] who solved the problem best.

## RULES

Draw a continuous chain across the face of the chart and back again so that the numbers within the circles will total the greatest number of points.

Begin at any number you wish in the upper half of the column on the extreme left of the chart, and continue to the extreme right, then back again to any number you wish in the lower half of the extreme left hand column.

Each section must be at a right angle with the preceding and succeeding sections, and must contain either 3, 4 or 5 circles, not less than 3 or more than 5. By section is meant a series of 3, 4 or 5 circles in a straight line. The circle at the angle where the chain turns is to be regarded as both the end of one section and the beginning of the next. This, however, does not mean that the numbers in such circles are to be counted more than once when adding up the number of points in the circle.

One deviation may be made from the rule requiring that no section shall be less than 3 or exceed 5 circles, and that is in the extreme right hand column of numbers where the chain turns to go back to the left hand side of the chart again. While this section must not contain less than 3 circles you may extend it down a column so that it will contain as many circles as you please. The number in each circle, of course, is to be counted the same as in all other circles.

In crossing the chart the first time the chain must be drawn up or down and to the right, but not to the left, and in returning either up or down or to the left, but not to the right. In returning the chain must not approach within at least one circle of any part of the chain running from left to right.

Circles may be drawn with either pen or pencil, and while they do not have to be perfectly round or artistically formed, care should be taken not to obliterate or blur the numbers within the circles.

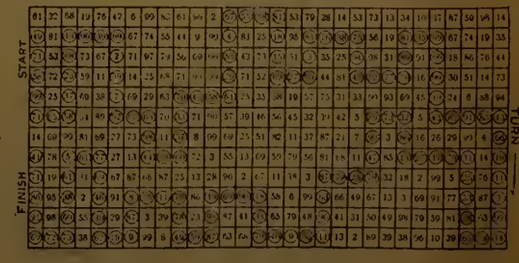
THE NAMES, ADDRESSES AND SOLUTIONS, together with a picture of the winning chart will be published in the February issue of Orchard and Farm, and as there is a great deal of detail work connected with the awarding of the prizes, no information will be given out previous to publication of the February issue.

## THIS ILLUSTRATES HOW TO WORK IT

The first section in the chain in the adjoining chart begins at number forty-nino (49) on the left-hand side of the chart and ends at forty-one (41) in the lower left-hand corner.

Beginning at forty-nine, the first section consists of five circles, the second three, the third five, the fourth four, the fifth five, and so on.

Added together the numbers in the circles total 7255.




**Orchard and Farm**
**Examiner Building,**
**LOS ANGELES, CALIF.**

Come from the place where men call for land to the place where land calls for men. Along the lines of the Canadian National Railways, SELECTED land is selling from $20 to $50 an acre, *unsurpassed* for fertile soil and rich crops.

Canadian National Railways

## "SELECTED" Farms

Your "Selected" Farm will be carefully chosen from the cream of the richest wheat and cattle country in America. Experts representing 17,000 miles of railway will help you get just the farm that meets your needs. This service is absolutely FREE. You can investigate as many districts as you desire.

## You'll Feel "at Home"

Western Canada extends a helpful hand to you. Friendly neighbors with the same language and customs—splendid schools, churches and social life—warm, sunny, growing summers and dry, healthful winters—law and order—efficient labor supply await you in this wonderfully prosperous last west.

## Taxes are Low

Western Canada taxes fall lightly on the farmer. There is a small tax on land, but buildings, improvements, animals, machinery and personal property ARE NOT TAXED AT ALL. There is no increased taxation on farm lands to meet war expenditures.

**DEWITT FOSTER**
Superintendent of Resources
Canadian National Railways
Dept. 2251, Marquette Building
Chicago, Illinois

## Big Profits in Wheat and Dairying

Western Canada is famous for its big wheat yields. "SELECTED" FARMS along the lines of Canadian National Railways average more than 20 bushels of wheat to the acre. Under specially favorable conditions, a yield of 50 to 60 bushels per acre is not uncommon.

Dairying is very profitable. That soil and climate are well adapted to it is shown in greatly increased production and high quality maintained. A world-wide market awaits all that Western Canada can produce.

Stock thrive on the prairie grasses which in many sections cure standing and make fine hay. Cattle and horses require only natural shelter most of the winter, and bring market prices without grain feeding.

**Easy Terms** Terms on "SELECTED" Farms: about 10 per cent cash down, balance in equal payments over a term of years; interest *usually* 6 per cent.

## Reduced Rates and Special Excursions

Reduced railway rates will be made for landseekers and their effects to encourage inspection of the SELECTED Farms along the lines of the Canadian National Railways. Personally conducted excursions for this purpose also will be arranged. Full information will be sent free on request. Write or Mail Coupon To-day.

DEWITT FOSTER
Superintendent Resources,
Canadian National Railways,
Dept. 2251, Marquette Bldg.,
CHICAGO

Please send me free and without obligation to me, complete information on the items concerning Western Canada checked below:

.....(1) Opportunities for Big Profits
.....(2) Reduced Railway Rates for Landseekers
.....(3) Business and Industrial Opportunities
.....(4) Personally Conducted Excursions

Name .....
Address ..... R. F. D. .....
Town ..... State .....

SEND COUPON



Allis-Chalmers Farm Tractors

The 6-12

Pulls two 12-inch plows, a two-row cultivator with 26½ inch clearance, mower, rake, binder or any standard four-horse implement. Delivers 12 H.P. at the belt—a one man tractor with any implement.

H. V. CARTER MOTOR CO.
*Distributors*
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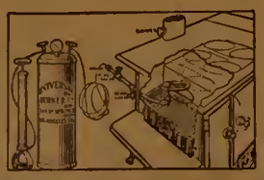
COMMON COAL OIL
(KEROSENE)
MAKES ANY STOVE A GAS RANGE



Simply attach a Universal Burner; made in sizes for ranges, stoves, heaters or furnace.

"Standard domestic outfit" complete, ready for use, sent forwarding charges collect,

$17.50

Air pressure system complete, with 10-gallon tank,

$35.00

Better combustion and more heat can be obtained with air pressure systems.

Dealers and agents wanted. Write for descriptive circular.

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MOVIE MACHINE FREE
Raise Your Own "Movie" at home. Wonderful moving picture machine, complete with gas generator and 3 sets reels, all different (96 views). Powerful lens, showing large, clear pictures. Given for selling 24 large colored pictures or 24 packages beautiful postcards at 10c each. Order choice today.
GATES MFG. CO. DEPT. 444 CHICAGO



GOING TO BUILD?
Send for our Price List of Lumber, Sash, Doors and Builders' Supplies. We save you middleman's profit.
Contractors' & Builders' Supply Co.
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# About Your Will

(Continued From Page 9)

death of the grantor, or intended to take effect at his death, and can be defeated only by bona fide (that is made in good faith) conveyances parting absolutely with possession, title and enjoyment in grantor's lifetime.

To illustrate: A certain banker in California had a large estate represented by shares in his banking concern. Desiring to avoid the inheritance tax, he divided the shares among his heirs, but did not deliver them. When the heirs attempted to pass them after his death without the payment of tax the inheritance tax collector brought suit and recovered the tax. The inheritance tax law gives a very generous exemption to the family before any tax is fixed and it is morally wrong as well as dangerous to try to evade it.

### Kinds of Wills

Wills are of two general kinds—"written" and "unwritten." The unwritten will is known as a "nuncupative" will. This is a will that is little used, it being intended for sailors and soldiers or persons injured and in fear of sudden death. It can not affect property over the value of $1000 and need not be in any certain form. It needs two persons to witness the statements of the dying man or the person in military service, as the case may be.

A written will may be either "olographic" (also spelled holographic) or "witnessed." An olographic will is one that is entirely written and dated and signed by the hand of the testator himself. It need not be witnessed. To make it valid it must have no connection with any written or printed form and no rubber stamps should be used for date or any name.

The early cases recite the probate of a will that was tattooed upon the back of the daughter of the testator, the father and daughter having been wrecked on a desert isle, showing that the kind of material used is not important if it serves the purpose, but it must be written by the hand of the testator in its entirety.

Any other will must be executed in strict compliance with the following rules: It must be subscribed AT THE END by the testator or by some person in his presence and by his direction, signing his name; there must be two subscribing witnesses, who at the request of the testator, in his presence and the presence of each other, sign as such witnesses; the testator must announce that the same is his will and must sign in their presence or acknowledge the signature as his own to them.

The addresses of the witnesses must follow their names. Witnesses selected should be persons of lawful age and of such a residence that they will be of easy access when the will is to be proven in court. They should also be persons of intelligence and respectability, and those well acquainted with the testator, since in the event of a contest their testimony may be of the highest value.

No beneficiary or person who is to take property under the terms of the will should be a witness, as gifts to such subscribing witnesses are for the most part void, there being certain exceptions, as in the event that there were more than two witnesses or that the subscribing witness might have taken under law if no will had been made.

Such wills as are proven to have been procured by duress, menace, fraud or undue influence may be denied probate. Duress means compulsion; menace means threat; fraud means misrepresentation or deceit, and undue influence is some abuse of the relations existing between the person procuring the will and the testator.

The legal effect of the matters will be determined upon a strict investigation as to the mental ability of the testator and to the relationship of the paries, striving to ascertain if the will was made voluntarily and by the testator without improper influence.

The mere fact that the testator is aged or physically weak will not void a will. The person making the will should be of sound mind and disposing memory and capable of making his or her desires known in an intelligent manner.

The celebrated will case, known as the "Tungate case," decided 20 years ago, which has been adopted by many of the States and even finally found its way into the English reports, illustrates this latter requirement. An aged woman, paralyzed in body and able to speak only two words, "yes" and "no," sent for her attorney, who wrote a will for her through the process of suggestion and elimination.

He asked such questions as this: "Do you wish to make a will?" Answer, "yes."

"Do you want to make all the awards to the children equal?" Answer, "no."

"Do you want to will Charles $6000?" "No." One thousand dollars?" "Yes."

The courts held that this will was not the will of the woman but the will of her attorney and therefore not valid.

A will may be revoked or cancelled and destroyed. A will may be changed by the additions of codicils, which are supplements, made later than the will and designed to alter or add to it. The codicil may or may not be on a separate instrument.

A will may be revoked or canceled through some happening such as the birth of a child or the marriage of the person involved. If a child born after the making of a will is unprovided for, it will inherit in the same manner as if no will had been made. If testator has children and they are not mentioned in the will and not provided for in the will, they will "take" just as though there were no will. Therefore, it is a common practice to name them and to say that the mother will provide for them or that they have had their share, "having been provided for."

### A Solemn Duty

All property acquired after the making of the will comes under the terms of the will. These points are brought out in order that one may see the fairness of the law of wills and be moved to prepare a will in proper form.

A will should be solemnly and carefully thought over, and made in good humor and not in a fit of anger or spite. A wealthy rancher in the South, angered at his wife for some fancied wrong, made a will, leaving her only a life estate, with the property "tied up" until the youngest child came of age. Being suddenly stricken with a fatal disease, he tried to tell his wife that he wished something changed but was unable to make himself understood. For 20 years his wife has suffered from the

effects of this will, which the husband never intended to take effect.

Do you wish your property handled in a businesslike and careful manner? If so, do not let the mere matter of sentiment control your selection. Some wives make good business agents and some, unfortunately, do not. Often they are called upon to act at a time when they are probably less competent than at any other time. Do not be led by sentiment to make some friend or relative your executor, if he is not highly proficient and a good business man. It is true the attorney and court will lend a guiding hand, but the outside business, such as selling and disposing of property, needs the close attention of the executor. Trust companies are highly favored by some persons, as they are well equipped in training and practice in the handling of large estates where funds are in trust for certain persons.

Do not execute your will and then throw it about or leave it where it cannot be found on your death, or, worse still, leave it where it may fall into hostile hands. No matter how good a will you have, if it never reaches the probate court it will not become effective. It is a wise thing to leave the will with the person whom you trusted to draw it. In this way it will be promptly produced and the estate will have the advice and knowledge of the man who knew your wishes and desires and has doubtless a list of your securities and other valuable data.

Since your will is important, it is worth having drawn in "bullet-proof" manner. In very few cases can a person unaided draw a will that will carry out his intentions and be valid. The fee an attorney will charge will be well worth the services rendered. In no sense has this article been intended as an education in will-drawing; the subject has been treated in such manner as to show the importance of wills in general.

It may be argued that wills are subject to contests, and that no one can prevent suit being brought by dissatisfied parties, but a will skillfully drawn will stand the test in most cases. Sometimes strong-minded clients insist that the attorney make certain conditions and limitations, although advised that they may lay the matter open to litigation, and in that event the resulting contest may prove successful.

**Here Are Important "Don'ts"**

Don't make a will in anger to spite some one.

Don't put off making a will until it is too late.

Don't be afraid that a will cannot be changed to meet changed conditions.

Don't try to make an olographic will on a printed form or filled in or signed with a rubber stamp.

Don't attempt to draw your own will if you want to be sure it will stand the test.

Don't make a will and let it be lost or leave it where it may fall into hostile hands.

Don't think that a will will dispose of property in any way that will prevent your selling or incumbering the same before your death. Wills affect property owned at death only.

Don't let your wife sign your will as a witness. All beneficiaries should be excluded from signing as witnesses.

Don't delay until it is too late!

"The Hand—"Boss told me to put [illegible] this [illegible] machine, but dinged [illegible] I [illegible] good [illegible] going to do"


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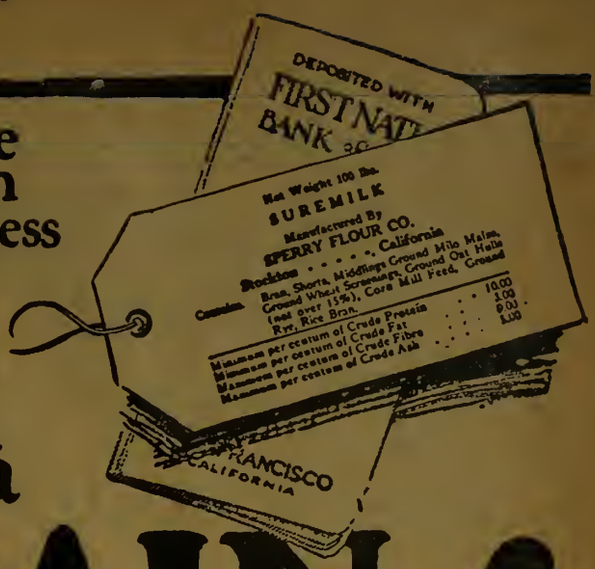


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NOR, for that matter, can you make a real profit raising hogs unless you balance their ration with a grain feed. You must remember that the digestive tract of a pig is small and unlike that of a cow. The cow's stomach is equipped to handle bulky roughage. The pig cannot—or, at least, Mr. Porker will gain very little on pasture alone. The successful hog raiser knows that growing pigs demand some form of grain. And SUREMILK supplies this essential element in a fattening hog's ration. Better than the best barley. Economical, too! For it is highly concentrated in feed value and does not bulk.

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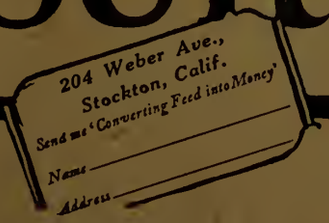
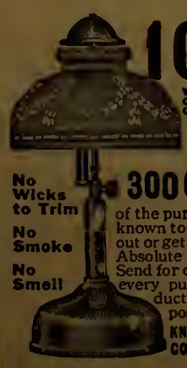


## Well Known Writer Passes

ORCHARD and FARM readers will grieve to learn of the death at Pomona recently of H. G. Tinsley, for several years a valued contributor to this magazine, whose stories frequently appeared under names other than his own. He never sought publicity, but rather strove to put into his writings the inspiration and practical help that would make them valuable to the greatest number of readers.

Mr. Tinsley for many years was a publisher, as well as a contributor to leading magazines, including the Youth's Companion and other Eastern publications, which featured his articles and fiction. His articles on the Indians of Arizona are perhaps his best known works.

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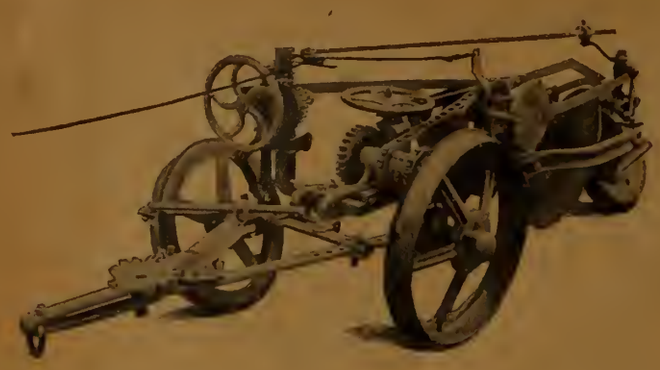

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# How I Keep My Poultry Records

KEEPING a definite and accurate record of expenses and proceeds is not such a difficult thing to do. To "keep track" of the feed is perhaps the most troublesome item, but a simple way is to store the feed for use in a box, barrel or bin of known capacity.

If the box holds, say, five bushels of grain, a record can be kept quite accurately by filling the box and charging this amount of feed on the record for the current month. Then when the box is empty, it can be refilled and charged on the records for the succeeding month.

While it is desirable from the standpoint of monthly reports that the feed be so measured, that what is charged on one month's record will be mostly fed during that month, it is not necessary if a small amount is left over at the end of that month to measure that and deduct it from the amount charged on the current record. Simply allow whatever feed may be left in the bins at the end of the month to be carried over, and the feed bill for the next month will be just that much less, while the total feed bill at the end of the year will be quite accurate.

In keeping egg records, confusion sometimes results by losing count of the number of eggs eaten. This difficulty can be avoided by setting down each day the number of eggs gathered on that day and then adding these figures at the end of the month to get the total number of eggs gathered for the month. Then subtract the number of dozens sold from the number of dozens gathered and this will give an accurate figure on the number used in the house.

In order to avoid complications in figuring the average number of hens on a farm for each month, the number on hand at the first of the month is taken for the average number for the month. For this reason when hens are to be sold they should be disposed of as nearly as possible during the last week of the month so that the flock average will not be seriously disturbed. —Albert J. Mason.

# Care of the Doe at Kidding Time

By Dr. J. F. Farmer

THERE are a few directions which in ordinary circumstances are well to heed in order to bring a doe safely through pregnancy to kidding.

If the doe is milking, feed the regular ration for three months after breeding, then cut down to a pint of bran twice a day, until about two weeks before kidding; then add oil meal enough to supply fat for the animal. (This will probably be a tablespoonful at a feeding.)

If the doe is not milking, feed as usual (probably hay with a little grain) for three months, then feed as the milking doe. Be careful that there is no overfeeding, especially of grain, while an abundance of green feed is requisite. Among the green feeds there is nothing better than spineless cactus to prepare the doe for the time of delivery. Three months after breeding see that the feet are trimmed as closely as possible; give her plenty of yard room by herself, away from other animals that annoy or persecute her.

### Watch Before and After

The doe needs careful attention for two weeks before time of kidding, or 135 days after breeding, for delivery may occur at any time and it is best to be ready. Some does carry their young longer than others and frequently accidents hasten delivery. The udder must be watched because of the likelihood that a sudden rush of milk to the udder may produce caked udder, which is to be avoided.

The doe in the wild state does not have these contingencies to meet, because the domestication of the milk goat has overdeveloped the milk-producing glands and is liable to bring about this premature rush of milk. "Forewarned is forearmed." If this sudden filling of the udder should occur milking is the only remedy. However, if the condition be not met beforehand, then the best plan for coping with it is hot applications of water and frequent milking and gentle manipulation of the udder in order to remove every drop of milk possible from the remotest part of the glands. The manipulation must be gentle, yet firm and persistent.

Neglect may spoil the udder at least for one lactation period. If the doe is alone, as she apparently wishes to be just before kidding, it is easy to tell about the bowels, because where it is necessary to feed dry feed most or all the time the bowels frequently refuse to act regularly and close attention must be given. The remedy is most easily found in exercise, green feed, oil meal or even oil in the bran.

### Prepare a Box

Before the kidding the caretaker must have a box, probably 18 inches deep, large enough for three kids, and cover the bottom with straw, waste hay or sawdust. Have clothes to dry the kids at least in part and a bottle or pan, according to the method of feeding. The author is an advocate of pan feeding, as it is easier if properly begun.

Before birth the kid is surrounded by the amneonic fluid. Just as the blood passes through the heart and by its presence starts the heart to pulsating, so does the amneonic fluid, by being taken into the stomach by the swallowing motion of the oesophagus, start the action of the stomach and intestinal tract.

In this fluid the kid is protected from shock, except in case of accident. At time of birth the kid meets its first shock and if the shock can be minimized this process of swallowing goes on. The shock to the kid comes when it falls on the ground. If the place of delivery can be made soft and warm, then the shock is much less.

Then if the kid is taken up and handled with care, and its nose placed in some warm milk, the swallowing process goes on, and when once begun the habit is easily established and there is no inclination to turn to the teats for nourishment.

Place the kid in the box after the first feed and allow the doe to dry it while you attend to the next kid. After all are born, then let the doe dry them all, as it makes her more contented.

### Other Preparations

There ought to be a stall or small protected yard for the kidding, away from the weather, but light; and there should be plenty of hay and warm water for the doe to drink during and after delivery. A warm bran mash, quite thin, should be ready for the doe during or just after kidding, and she should be made as comfortable as possible.

If bottle feeding is preferred, the bottle instead of the pan should be ready at kidding time; however, the old proverb is true: "As the twig is bent, so the tree is inclined," and it holds in teaching a kid to drink.

The bottles are more difficult to keep clean and liable to break, the rubber nipples are expensive and it is harder to pour milk into a bottle than into a pan. The pan is easily cleaned and is not liable to break; one pan will last several years, if cared for, and it is easier to set down a pan of milk for a kid than either to hold or place in a rack one or more bottles.

## Milk Goat Association

Humboldt County has a milk goat association, of which David Seabury of Ettersburg is temporary secretary. The association has purchased necessary machinery and negotiated for the services of a cheese maker from the Alps. They will shortly commence the manufacture of goat milk cheese and, if a market can be established, goat milk butter. The butter from goat milk is said to be higher in vitamines, as it is not necessarily pasteurized.

## Goat Raising Near San Diego

Goat breeding in San Diego County is increasing rapidly, climatic conditions being ideal for these animals. There are about 3000 milk goats in the county, an increase of 2000 in 12 months. Angora goats also do well in the back country of the county and now number about 7000, according to a recent report issued by the California Development Board.

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# Commonsense Feeding for More Eggs

*The following suggestions are supplied by the Farm Bureau of Sonoma County, one of the great poultry centers of the world. They are fairly representative of the methods that have brought success to egg-producers, who are in the business to stay.*

QUANTITY egg production is the result of (1) systematic culling and breeding; (2) skillful feeding, and (3) comfortable, healthful quarters.

Feeding cannot be made to overcome the detrimental effect on the egg yield of indiscriminate breeding and dirty, crowded quarters.

All that feeding can be expected to do is to supply a well balanced diet that will promote maximum normal production if fed in such a way as to stimulate healthful activity. The method of feeding is fully as important as the feed materials fed.

A very good ration for laying hens is as follows:

**GRAIN MIXTURE**

100 lbs. whole or rolled barley.
50 lbs. Egyptian corn or milo maize.
50 lbs. cracked Indian corn.

**MASH MIXTURE**

(Can be fed either moist or dry.)
50 lbs. wheat bran.
50 lbs. wheat shorts or brown middlings.
50 lbs. ground barley or oats.
10 lbs. soybean or linseed or cottonseed meal or ground beans.
30 lbs. meatscrap or fishscrap.
5 lbs. finely granulated charcoal.

The feeding of one grain alone is not apt to give as good results as the feeding of a mixture of two grains, and a mixture of three or four grains is even better. It pays to feed grain mixtures and mash mixtures containing a variety of feeds, if feed prices will allow. Variety increases palatability, and palatability means more efficient use of the feed eaten, as it stimulates a more copious secretion of the digestive juices.

Variety in the ration also insures a good supply of all the different food elements necessary to maintenance of health and production. Some feeds lack certain essential food elements that others possess. If the ration were limited to a very few feeds, some of these essential food elements might be lacking and the health and production of the fowls affected.

Barley, being the cheapest grain that can be fed to poultry in California, may be fed quite heavily in the grain ration, as it will lessen the cost of the grain mixture per 100 pounds. It should not, however, be used to exceed 50 per cent of the grain mixture.

Possible changes in above ration to meet changing conditions in available feed supply from time to time are as follows:

Wheat may be added to the grain mixture in moderate quantity (not to exceed 100 lbs.) or it can be used to replace all or a part of any one of the other grains, i. e., barley, Egyptian corn or Indian corn.

Plump oats may replace all or a part of the barley in grain and mash mixtures.

### Grain Sorghums

Any other grain sorghum, such as feterita, kooliang, kafir corn, etc., may replace all or a part of the Egyptian corn or milo, but the two latter grains are preferred. The grain sorghums also may replace Indian corn if the latter becomes too costly to feed or cannot be secured, but as Indian corn is one of the best poultry grains, it should be fed in at least small quantity if available.

If it is desired to feed sprouted barley (having sprouts about 1-16 in. long), the dry grain mixture (minus barley) may be fed in scratching litter in the morning, and the sprouted barley in troughs at night. Moist grains should not be fed in scratch litter or on ground, because dirt will adhere and be eaten by fowls.

Mill run may replace bran and shorts if latter cannot be secured. If the mill run (also called mixed feed) is largely bran, add 25 per cent flour middlings or corn meal to 75 per cent mill run.

Brown rice with hulls removed, hulled rice screenings and white unpolished rice may be fed to the extent of not more than one-third by weight of the grain mixture, if such rice can be bought at a low enough price to more than compete with common poultry grains. The brown rice is preferable.

Rice bran containing no hulls and not less than 10 per cent crude protein, 5 per cent fat and not more than 15 per cent fiber (guaranteed analysis) as well as rice polish and ground rough rice, also may be added to the mash mixture, if it can be purchased at less cost than similar and more common feeds during periods of high feeding prices. Such rice feeds should not be used to a greater amount than 20 to 25 per cent of the total grain and mash ration, or 20 per cent of the mash mixture—dry weight.

If sour skim milk or buttermilk can be kept constantly before the fowls in drinking pans, no meat scraps need be fed, as the milk will take its place. The fowls will consume as much as 30 to 40 pounds of milk per 100 head daily. One pound of commercial dried meatscrap is equivalent to about 15 pounds of normal skim milk or buttermilk.

Fresh, raw, ground green bone may also be substituted for meatscrap if fed at the rate of one-half ounce per fowl per day.

### Method of Feeding

The grain mixture is fed in a deep litter, lightly in the morning and more abundantly at night. Approximately one pint of grain should be fed to 15 fowls of the lighter breeds such as Leghorns, in the morning, and 1½ pints to 15 hens at night. Heavier breeds, such as Plymouth Rocks, may be fed a little more if the poultry keeper thinks it desirable.

The dry mash should be kept in a hopper before such fowls as Leghorns at all times. For older hens of the heavier breeds, such as Plymouth Rocks, Wyandottes and R. I. Reds, the hopper may have to be kept closed till about noon each day, as older birds of these breeds have a tendency to eat too much mash and become over fat.

Fowls are confined a great deal in winter, and weather conditions are much less favorable than at other seasons. After scratching in litter all morning they are inclined to begin sitting around about noon. If a light noon feeding of a crumbly moist mash, using regular dry mash mixture, is fed as an appetizer, however, it will tend to put new energy into the birds and aid greatly to increase the winter egg yield. Finely cut roots or tender greens may be included in such a moist mash with great benefit to the fowls. At other times of the year, when weather conditions are good and the fowls can spend most of each day out of doors, the dry mash is all that is needed.

Fresh, green stuff, such as alfalfa, rape, kale, lawn clippings, cattle beets, chard, beet tops, Chinese cabbage, young green barley, etc., also should be fed in abundance, in addition to grain and mash mixtures. Feed greens only in a perfectly fresh, tender and succulent condition, and give fowls all they can clean up one or more times daily. Green range is superior to hand-fed greens. A moderate quantity of finely cut greens fed two or three times a day is better than that fed only once per day in larger amount, especially in summer, when the greens dry out so rapidly after being cut.

Grit and oyster shell should be kept before the fowls at all times, in self-feeding hoppers.

Fowls of all ages should be so fed that their appetites are never entirely satisfied, except when they go to roost. In the case of yarded fowls especially grain mixtures should be fed in a deep scratching litter so as to compel the fowls to take sufficient exercise by scratching vigorously for all they get.

### Overfeeding Dangerous

A very common poultry trouble is too-abundant feeding. Grain is scattered on the bare ground where fowls can pick it up with a minimum of effort; they gorge themselves; there is no incentive to exercise; the crops are continually stuffed.

Digestive troubles result; birds suddenly drop off roosts dead at night; egg production drops. The fowls become dumpy; various ills develop. In fact, too abundant feeding is a major cause of most poultry ills. Why do it and waste money?

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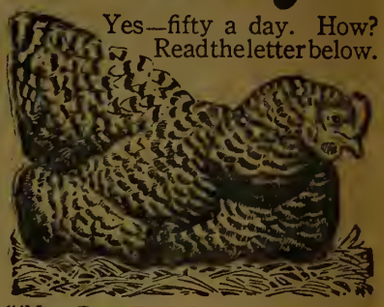

"'More Eggs' Tonic is a Godsend," writes Mrs. Myrtle Ice, of Boston, Ky. She adds, "I was only getting 12 eggs a day and now I get 50." Give *your* hens a few cents' worth of "More Eggs", the wonderful egg producer, and you will be amazed and delighted with results.

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E. J. Reefer, Poultry Expert 5781 Reefer Bldg., Kansas City, Mo.
Dear Mr. Reefer:—I accept your offer. Send me the five $1.00 packages of Reefer's "More Eggs" for which I agree to pay the postman $2.00 when he brings me the five packages, the three extra packages being free. You agree to refund me $2.00 *at any time* within 30 days, if *all five* of these packages do not prove satisfactory in every way.

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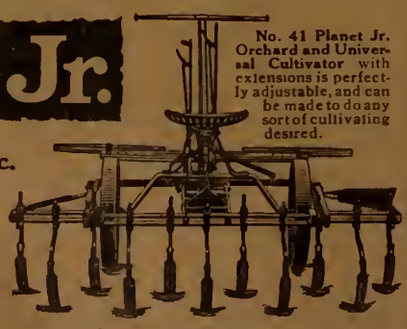

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# The Ontario Peach

(Continued from Page 8)

in the territory adjacent to Ontario, and because of its unimportance commercially in the north, there seemed to be good reasons for naming it Ontario. The suggestion was also made in the article referred to in this paper, that the name Tuscan should be dropped, and the proper name of the variety, viz: Tuskena, be used in the future.

Since the consent of the Statewide Association of California Nurserymen was secured to the plan of renaming the Southern Tuscan it is assured that the nursery trade will adopt the name Ontario, and in the interests of correct nomenclature it is hoped also that the Tuskena will be known by its original and therefore correct name.

### Differences Between the Fruits

To those who are familiar with these two varieties of the peach there is absolutely no difficulty in distinguishing one from the other. The accompanying comparative descriptions, which were included in the Monthly Bulletin article referred to, give a very good idea of the two varieties.

A careful study of the leaf characteristics of varieties of fruit trees will reveal the fact that there are great possibilities of identification through a knowledge of the shape, size, folding and serration of typical shaped trees.

The illustration accompanying this article clearly illustrates the difference in certain characteristics, between the leaf of Ontario and that of Tuskena. The most striking thing that impresses one immediately upon looking at the two leaves is the great difference in the margins.

Ontario leaf has a decidedly deep, prominent serration when compared with the Tuskena leaf which may be only slightly scalloped or fine-toothed when serrations are present. A close examination of the projections making up the serration of Ontario will disclose the fact that there are two points; in other words, the leaf is doubly-serrated, there being a smaller point or tooth on the large projection. This characteristic alone, is sufficient positively to distinguish the leaves of the two varieties. It must be borne in mind, however, that other varieties besides Ontario may have leaves that are prominently serrated (for example Lemon Cling) and identification of the variety by this characteristic alone might prove difficult, yet when the leaves of the two varieties that serve as a basis for this article are compared, no one would have the slightest difficulty in telling the one from the other.

Another noticeable difference between the leaves of Ontario and Tuskena, is found in the "crinkling." Ontario naturally has a rather smooth leaf, which when pressed flattens out readily. The leaf of Tuskena is crinkled to such an extent that it is extremely difficult to press it out flat.

In size there is little difference between the two leaves although in the case of younger trees at least, the Ontario is inclined to be much broader than Tuskena.

The differences existing between the seeds of the two varieties is no less striking than the fruit and leaf differences. The illustration is perhaps a little misleading, as the flat surface of the Tuskena is not readily distinguishable. This is due to the angle at which pit was photographed in an attempt to show the deep convolutions on the ventral side. The difference, however, between Ontario and Tuskena pits is sufficient so that the one can be classed as rather small and the other large. Not only is the Ontario pit smaller, but also it is much more round in outline. The Tuskena pit in the picture appears too narrow near the apex where it usually broadens out very perceptibly. Typical specimens of the two measured as follows: Ontario, 1 1-4 inch long, 1 inch wide and 5-8 inch thick; Tuskena, 1 1-2 inch long, 1 inch wide and 5-8 inch thick.

### Difference in Quality.

There is a decided difference in the flavor and quality in general, of the two peaches. Ontario is a little finer-grained and much sweeter. It is inclined to be affected a little more with red streaks, which the canners may find objectionable. It is the testimony of canners in Southern California, notwithstanding this fact, that Ontario is a superior canning peach.

*Showing Contrast in Pits*

***At the left is the Ontario pit; at right, the Tuskena. Note deep convolutions, sharp apex and larger size of the Tuskena.***

### Bearing Characteristics

The general appearance of the trees of the two varieties is similar. Ontario in Southern California, is a heavy and consistent bearer, outyielding Tuskena throughout a series of years. The latter may bear very heavily during certain seasons, but is not so sure a bearer as Ontario.

In the preparation of this article, no attempt has been made to straighten out all the tangles that occur in respect to the various kinds of peaches which bear the name Tuscan. The purpose simply is clearly to differentiate between what is believed to be the true Tuskena and an entirely different variety very common in Southern California but little grown in the North.

Since this southern variety has been grown extensively in the vicinity of Ontario for twenty-five years this name suggestive of its adaptability in the region surrounding this town, was chosen. The adoption of the new name Ontario will result in calling to the attention of the fruit growers and nurserymen a variety of peach which possesses unusual merit, and one which has been little known because of its having been confused with Tuskena.

---

**Greatly Enjoys It**—"I am one of the many readers of Orchard and Farm, and enjoy it more than can be expressed in words."—Frank L. [illegible], Sacramento, Calif.

## Alfalfa Success

(Continued from Page 6)

be accomplished as early in the winter as possible, although in winter leveling it is particularly necessary to guard against working the soil while it is too wet.

On the other hand, delaying these operations until just before seeding time will make the preparation of a good seed-bed practically impossible, and, in addition, often delays seeding until too late in the season for securing best results. Land which has been prepared and thoroughly cultivated before the rainy season is well advanced will be settled and mellowed by the winter rains in a way which no amount of cultivation can accomplish and render the preparation of a good seed-bed in the spring relatively easy.

In addition, the cultivation and exposure to the elements during the winter months will also help materially in putting that portion of the field from which the surface soil has been removed in better condition to sustain plant growth.

The next operation, then, will be the preparation of the seed-bed in the spring. A good seed-bed for any spring crop is one with a smooth, shallow mulch on the surface, with the soil below the mulch firm and moist, so that when the seed is planted it will be placed in contact with a large number of moist soil particles from which it may quickly absorb the water necessary for germination.

A good seed-bed is particularly important for such small seeded crops as alfalfa. Then, too, alfalfa cannot be planted very deep or the food material in the seed will be used up before the seedling reaches the surface. For this reason the mulch must be shallow, not to exceed two inches in depth, under average soil conditions.

### Facilitates Seeding

With the land leveled and prepared as outlined, the preparation of the seed-bed in the spring usually will be relatively easy. The winter rains will have settled and firmed the soil, so that cultivation of the surface with surface-tillage implements, which will produce a smooth, shallow mulch and destroy weed growth, usually will suffice.

It is rare indeed that the soil is so hard or the weed growth so luxuriant that plowing or deep tillage is necessary, and this should be avoided if possible; otherwise too much work will be necessary to put the land in proper condition for sowing. A shallow tillage with a cultivator or disk, followed by a smoothing harrow, will normally be all that is required. The disk is a very efficient implement for this purpose, but if a single disk is used it should be lapped; otherwise it will have a tendency to ridge the field, which is not desirable. If this work is carefully done, the field will be ready for seeding without further treatment.

[Next month Professor Madson will present another paper on alfalfa growing.]

## Meet the Middleman

(Continued from Page 10)

them in a business way, it is of the greatest importance that we give a good account of ourselves, because the labor of months or even years is sometimes tied up in a single deal, upon the outcome of which depends in large measure our future prosperity. We cultivate every other field on the farm but our own personalities, which we permit to lie fallow and grow up to weeds and briars.

### Rules to Remember

Here are some of the essentials of a winning personality, the power which enables us to deal profitably with other people. These rules are worth much careful, painstaking study:

An easy, quiet manner;

Self-confidence and self-reliance;

Mastery over impulses and emotions;

Freedom from fear and self-consciousness;

Inspiring optimism and healthy enthusiasm;

A well-groomed mind in a well-groomed body;

The ability to read and understand human nature;

Self-possession and self-command—"know thyself";

Doing the right thing in the right way in the right place.

A knowledge of other people's ideas and ideals, including religion and politics;

The ability to adjust oneself to his surroundings and never to seem ill-at-ease anywhere;

Willingness to accept whatever is considered good form in social, professional and business life;

A sense of justice and honesty which enables one to face all issues modestly and fearlessly;

Culture and refinement—having no habits, mannerisms or expressions which are objectionable to anyone;

Knowledge of how to clothe the body and thoughts becomingly and appropriately; that is, to dress and talk well.

Last, but not least—a pleasing, cultured voice, well chosen words and the use of good English. In fact, most of the above rules may be summed up in appearance, voice, language and manner. They are very important. We should not neglect them.


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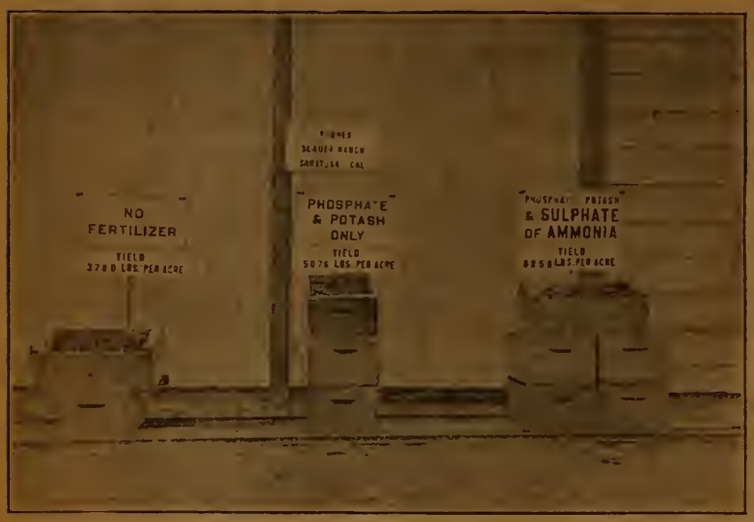


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# From Hotbed to Field

*This is the first of a series of articles by a successful plant-propagator, designed to be of equal assistance to the gardener and truck grower. The small amount of literature available on this important subject applies principally to Eastern and Middle-Western conditions, and is more often confusing than helpful. Particular attention is given to preparation and maintenance of hot-beds, time and conditions for planting, care of growing plants, pest control; in fact, all of the factors in producing early vegetables either for sale or for planting. These articles, we feel, will supply a long-felt want.*—Ed.

By George Gautier

THE purpose of the hot bed is to produce early plants. Persons engaged in the business of raising early plants are aptly known as nurserymen, for it is a fact that if one wishes to raise early plants and to have them ready for the field or garden earlier than his neighbors, he must "nurse them along."

Hot beds require continual watching; so continual, in fact, that the care given them actually amounts to a sort of nursing. Inattention to a hot bed for one day may result in the wasting of weeks of hard and careful work.

Hot beds may be made in any size and shape, but beds less than three feet wide and six feet long are impracticable for the reason that they do not contain a sufficient volume of manure to insure lasting heat. A bed 3x6 is ample for the home gardener.

In a bed three feet wide and twelve feet long, between 1700 and 1800 plants, such as tomatoes, egg-plant or peppers, can be raised; (that is, if planted in flats, of between 5000 and 6000 "pull" plants). Now, if about 1750 tomato plants are set out to the acre, it will readily be seen that one bed 3x12 feet will produce plants enough (in flats) for one acre, or enough "pull" plants for three acres. Tomatoes usually are set out in rows four feet apart with six feet between rows.

### Easy to Determine Capacity

From these figures one can determine the capacity of his hot beds for almost any vegetable plant he wishes to raise, as a bed of given size will raise approximately the same number of any vegetable plants. Thus, if you set egg-plant in rows two feet apart with three feet between rows, it will require two beds 3x12 to yield plants enough for an acre.

When you have decided on the size and shape of the bed, dig a trench at least two feet deep where you purpose to make the bed. Fill this trench with stable manure mixed with about 25 per cent straw, but be sure that the manure is in the process of fermentation. Manure older than two or three weeks is of less value, as fermentation likely has taken place.

### Must Be Solid

When the trench has been filled, the manure should be tamped down to insure evenness. It is essential that after tamping, the manure quite fills the trench, or that it has a depth of two feet. With less depth the bed will become cold after a few weeks. Next, sprinkle the manure until its surface has been slightly wetted. This quickens and intensifies fermentation, and, of course, makes for greater heat. But avoid drenching the manure, as this will "drown" or "kill it." Instead of giving off heat the manure then will become water-logged and cold.

In placing the frame over the bed, be sure to see that it is just a trifle narrower and shorter than the trench, that is, that the manure extends a few inches outward from the frame on all sides. The frame should be approximately fifteen inches high at the back and ten in front. This will give a slope to the glass and permit the sun to strike the bed for the better part of the day.

For best results hot beds should extend lengthwise from east to west, with the back to the north and the front to the south. Be sure that the corners of the frame are perfectly jointed and that the sashes fit snugly over the top. Corners and sashes must fit more or less snugly to prevent the escape of warmth during cold nights. Also pile dirt up about six inches on the outside of the frame. This will insure against heat escaping and also will, in the event of heavy rains, keep water out of the beds.

*Paper Has Replaced Glass in Many California Hotbeds.*

### Dirt Is Now Added

When the frame is in position over the bed, the manure should be covered with three or four inches of finely screened dirt; that is, dirt that has been sifted through a quarter-inch mesh screen. Care should be taken in the selection of dirt which is to be placed in the hot bed. It is advisable to scrape or shovel away the first few inches of top soil as this usually is laden with weed seeds. A little care in digging below the immediate surface of the soil in getting the dirt for the hot bed will save many hours' weeding later on. In spreading the dirt in the bed care should be taken to have the surface level. One is apt to be greatly deceived as to the slope of the bed on account of the greater height of the back of the frame and the comparative shortness of the front.

The tendency is to have the bed sloping from the back towards the

front. One should, however, try for absolute levelness of surface. The necessity for this precaution will be obvious as soon as irrigation must be resorted to. If the bed has a slope, water will accumulate at the lower levels and the higher levels will quickly dry out, causing plants there to wilt and suffer. Now seed either may be sown broadcast in this dirt (for pull plants) or it may be sown in flats.

In another article in this issue it has been shown that paper frames may be substituted for glass. In California paper frames are as satisfactory as glass and their cost is approximately 75 per cent less.

The correct temperature for the hot bed should be between 90 and 100 degrees. Some varieties of plants, such as peppers, are capable of withstanding a temperature as high as 115 degrees, but an average of 90 should be maintained. Temperature can be regulated only by ventilation, but until the seeds begin to grow, ventilation is not required except when sprinkling is to be done.

### Time for Planting

Hot beds should be in readiness for use by the first of February. For best results planting should be done early in February. Some growers, especially nurserymen, begin planting in January. But it is questionable whether such early planting is advisable as it has been found that seed planted in February will bring plants ready for the field as soon as those planted in January, while those planted in January often bear blossoms before weather conditions permit them to be set out. Planting in February will give plants for setting out in March, which is early enough. Hot beds may be used to advantage during January, February, March and April. After April the season is so advanced that hot beds are no longer necessary.

# Paper Sashes for Hotbeds

*How to make them; what they cost; their different uses—as told by George Gautier, experienced gardener and truck grower.*

THE use of paper instead of glass sashes is the newest wrinkle in hotbed architecture. This substitute combines the virtues of inexpensiveness, adaptability to the California climate and general effectiveness.

Paper frames cannot be bought on the market, and if you wish to use them on your beds you must build your own. The items required are lumber, paper, paste, linseed oil and nails. As hotbeds are variable in size, the materials must be measured and cut to meet particular needs; that is, if you use regular 3x6 sashes, your lumber and paper must be cut to that size. (Home gardeners usually prefer to use smaller and lighter sashes; say, 3x4, which, because of their lightness, are easy to handle.)

If the gardener wishes to build a hotbed to accommodate 3x6 sashes, his lumber for a paper frame should consist of six pieces of 1x1½, two of which are 6 feet long and four 3 feet long. The four shorter sticks are designed to serve as crosspieces. Of course, two pieces of the 3 feet lengths, with the two longer 6-foot pieces, would build the frame. But it is advisable to place two pieces across the frame as reinforcements. Redwood or soft pine is recommended.

### Paper Is Pasted

The paper, cut to a length and breadth sufficient to cover the frame, should be pasted on. In cutting the paper be sure to allow for about an inch overlapping all around the frame. It is advisable to build your frame to accommodate some of the standardized paper sheets sold at paper houses. For instance, a 3x6 frame will take a 36x72 sheet or two 36x36 sheets or three 24x36 sheets. This will eliminate all cutting and save much time. A satisfactory grade of paper for a paper frame is ordinary white-wrapping paper of medium weight. This grade is tough and not too heavy.

Homemade paste of white flour and warm water meets all requirements. Apply paste to frame with a pliable brush, but don't apply paste to the paper, as it becomes difficult to manage when moistened. As the paste dries quickly, care should be taken not to apply more paste to the frame than will be required for the paper that can be fastened at one time; that is, if paper frames in size so as to require two different sections to each frame, apply paste only on as much of the frame the one sheet will cover. In placing the paper on the frame, special effort should be made to lay it evenly; that is, taut and without wrinkles. After the paper is applied, the frame should be laid aside and permitted to dry thoroughly.

### Oiling Is Next

When the paste is dry, the outside of the paper should be well painted with a coat of linseed oil. The frame then must be placed where it will be protection dust until the oil has thoroughly dried; this usually requires from two to three days.

When it is completely dried it will be found that the whole frame has become a drum. Moreover, it will have become surprisingly strong. One should be able to distinguish varieties of growing plants beneath it.

Oiled paper was used by the Puritans for windows, it is said. Transparency, however, means only one thing as far as hotbed plants are concerned; viz., that an abundance of sunlight reaches the growing plants. As soon as the linseed oil has dried, the frame is ready for service.

The cost of such a sash is about 90 cents, including labor, as against $7.50 for a glass sash. If one breaks a paper frame it may be made as good as new for about 20 cents. It is not at all likely that the frame itself will ever need replacing, unless deliberately damaged. But if one breaks the glass in a sash it is very expensive to replace. The above figures were based on the cost of making one frame. If several frames were made the estimate would be reduced.

One of the distinct advantages of the paper frame is that it is used exactly in the same manner as glass. No special attachments are necessary to hold it in place over the hotbed. If you were to remove your glass and immediately substitute a paper frame in its place you would obtain the same results as if you merely replaced the glass.

### High Efficiency Obtained

Paper frames are equally as efficient as glass. That means that they retain the heat generated beneath the bed and that they permit an abundance of sunlight to reach the growing plants.

In connection with the problem of light, let me here suggest that the hotbed should always be uncovered during the middle of the day, except on rainy days and then only when it is likely that the sun will not give any warmth for a few days. Growing plants absolutely require ventilation. Open air is the best preventative of "damping off" yet known.

In addition, paper frames have other advantages over glass. They are very light. Because of its unwieldiness, two men are required to remove a regulation 3x6 sash from a hotbed. A woman can very easily remove a paper frame. Its total weight is about five pounds, as against 40 of the glass sash.

### Sunburn Damage

Tender plants are very susceptible to sunburn. Here in California where perhaps more damage is done to growing hotbed plants every season by the hot sun than is done by frost, paper frames are better than glass. Two hours of hot sunshine beating down upon a hotbed through a glass sash is sufficient to crisp over 75 per cent of the plants.

Paper frames are excellent sun shades and will not permit sunburn as readily as glass. This does not mean, however, that frames should not be removed during the heat of the day; that is, putting it safely, between 10:30 and 2 o'clock. Of course, it all depends upon the weather; sometimes an hour's uncovering is ample. Both glass and frames not only should but must be removed to prevent "damping off."

Here is a use to which the frame may be put to advantage: Use glass to start plants and until they have attained a week's growth. Then remove the glass to start new hotbeds, substituting paper frames to cover the

Continued on Page 42)


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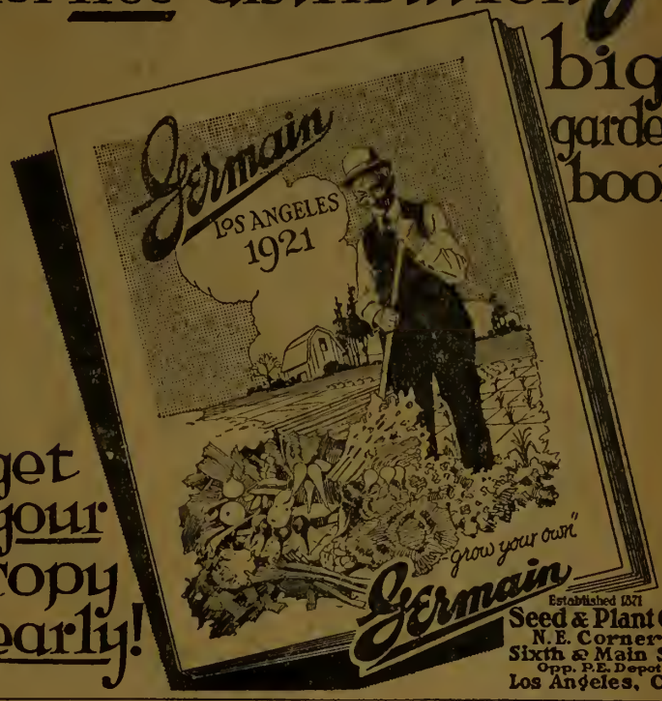


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## Spuds Without Water

*One of our subscribers describes an unusual method of raising potatoes, which, he says, has been very successful in arid portions of Arizona where the soil was not too sandy or impregnated with alkali and where drainage was good.*

SUCCESS with the furrow method of raising potatoes is best assured if the land is plowed early in the fall, not later than October first. The soil should be harrowed well and made as clean and free of weeds as possible.

The land then is furrowed with a lister, as deep as four horses can pull it. The seed is cut carefully so that there are two or three eyes to the piece, and dropped about 8 inches apart in the rows. Then it is covered with about one and one-half inches of soil, over which is spread a layer of well-rotted manure to a depth of two inches.

Next the furrows are filled heaping full with straw, well packed down. Nothing more is necessary until the weeds are well up in the spring, when it may be advisable to cut the weeds between the rows.

When weed growth has or would have attained a height of about six inches, a few vines will be noted appearing above the straw. The new potatoes then will be ready for harvest. It is not necessary to dig them, simply throw the straw out of the furrows and the potatoes will be found lying at the bottom. (Good drainage is essential so that the water will not stand in the furrows and rot the crop.)

Another crop may be planted without further plowing of the soil and potatoes raised indefinitely in the same field by this method, unless disease should make advisable a change of crop or the ground become hard-packed.

### The Late Crop

A fall crop may be raised in the same way, but should be planted very early. The seed should be planted deep, but not more than 16 inches below the normal surface of the ground, and plenty of manure and straw used, as there will be less moisture, of course, than was available for the winter crop. However, even in the true arid regions, it is possible to raise potatoes successfully without irrigation by following this method.

If a late crop is raised, this method has special advantages, inasmuch as a killing frost may occur without preventing the maturing of the crop, only the tips of the vines above the straw being killed.

The spring crop similarly is protected against frost, for, although the potatoes are maturing very early, the vines are not out until a month later than those of the crop raised in the ordinary way.

It is possible to raise a good crop by this method without any cultivation whatever, and as there is no digging the labor of harvesting is less, while the tubers are clean and ready for sacking when uncovered.

We have had good success with Early Rose, Early Victor and other standard early varieties for the spring crop, while standard late varieties are better, of course, for the fall crop.

In either case, the crop is harvested at a time when prices usually are highest.—Greenville, Cumberland.

## Attractive Calendar, Free

The Poultrymen's Co-operative Association, composed of nearly 200 Southern California poultry raisers, offers to send free to any owner of six or more laying hens a copy of its 1921 calendar done in seven colors. Send only a 2-cent stamp to defray postage. Address the Association office, 1516-18 Industrial street, Los Angeles.

"Many heads are better than one"

# Important Announcement

## *More CASH Prizes for Our Subscribers!*

THE "HELPFUL HINTS CONTEST," which closed recently, was a great success. The cash prizes and the remittances for all articles published totaled nearly $200. Scores of useful, interesting suggestions were received and published. Now we shall begin at once a new and similar event, to be known as the

# "Helpful Suggestion Contest"

(To extend over a period of six months.)

### EASY TO TAKE PART

You do not have to be a writer. Simply describe, in as few words as possible, some "short cut," new method or helpful plan that has lightened your work or increased your profits. It may have to do with the household, tractors or machinery, poultry, livestock, fruit growing, field work—in fact, any branch of farming or rural home life. Little-landers, big ranchers, men, women and children alike may take part. Sketches or photographs are appreciated but not required. Write plainly and sign full name and address.

### HERE ARE THE PRIZES

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| Third Prize | 15.00 |
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| Five Prizes of $5 Each | $25.00 |
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| Ten Prizes of $2 Each | 20.00 |
| Total Prizes | $141.00 |

## Every Article Published Will Be Paid For

REMEMBER—You cannot lose! If your article is adjudged interesting and helpful enough for publication it will be paid for. The sum of $1 will be awarded for every item published that does not win one of the above prizes.

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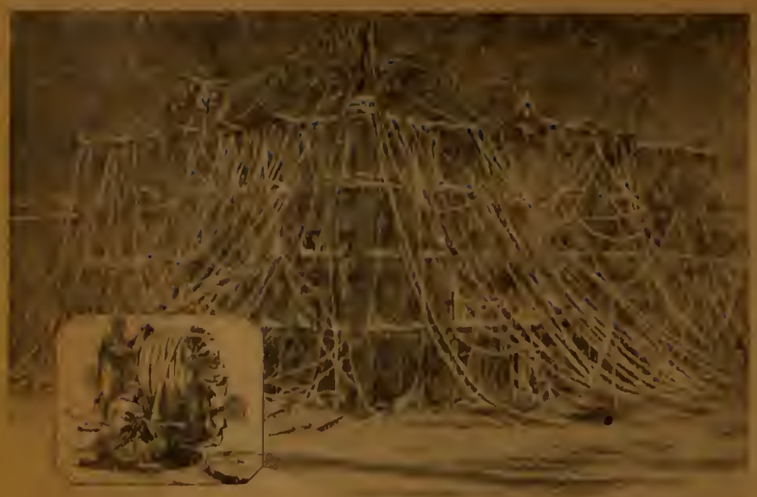

# The Contributions of Science

The greatest material benefits the world has received have come from the laboratories of the scientists. They create the means for accomplishing the seemingly impossible.

Science, after years of labor, produced the telephone. From a feeble instrument capable of carrying speech but a few feet, science continued its work until now the telephone-voice may be heard across the continent.

In February of 1881 a blizzard swept the city of Boston, tearing from the roof of the Bell telephone building a vast net-work of 2,400 wires. It was the worst wire disaster the Company had sustained.

Now through the advance of science that number of wires would be carried in a single underground cable no larger than a man's wrist.

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# Seasonable Garden Hints

*The permanent garden marks the home of the substantial citizen. This article tells how to grow some of the valuable garden perennials and includes timely planting suggestions. Every season is a garden season here in sunny California.*

By Chas. L. Schufeldt

WE have had fine rains; the California spring is here. As the East is numbed in the grip of Jack Frost, the odor of growing things scents the air in "God's Country."

True, not all plants are growing at this season; some are dormant, and the sharp, frosty nights nip the tender growth. But this should be a season of garden activity. Because the contrasts between seasons are less perceptible here on the Coast, we are likely to allow December and January to slip by without doing the planning and planting which are necessary now if the garden is to produce its 365 harvests a year (for every day should be a harvest day).

The garden should be planned on paper, but allowance must be made for as many as six plantings a year of a number of food products. Rotation should be practiced; the annuals should be separated from the perennials.

The crops which will grow from three to ten years should be placed together along one side of the garden and should extend for its full length. They should be so placed that they will not interfere with cultivation, and so that there will be ample space between them and the beds or rows of "annuals."

### Planting the Perennials

Among the permanent plants to remain for several years are the strawberries and other berries, the rhubarb and asparagus, and the herbs, such as mint and thyme, sage and lavender, horehound, savory and caraway. Of course the renter who expects to move any month or the speculator who owns a home only for the sake of money to be made in buying and selling, will not be greatly interested in planting a long-time garden.

Happily, the number of people who are settling down in one place, expecting to make that their permanent home, is rapidly increasing. There is a growing demand for the home place where some permanency is evident in the planning and planting. Therefore, perhaps even the speculator can see reasons for starting more plants in the food garden which will be growing there for years.

### Growing Strawberries

We will first speak briefly of strawberries. If given good care they will grow and bear well under a great variety of conditions. They cannot be neglected. The Japanese raise most of our strawberries which are in the markets. They are persistently careful; they do the needful thing at the right time. Those of us who dislike to give attention to the little details may not succeed in growing strawberries.

### Preparation of Soil

Level the place where strawberries are to grow. Make absolutely certain it will irrigate well without overflowing the ridges anywhere. Prepare the soil by plowing down a quantity of good quality manure. Fifty tons to the acre is none too much on a loam or sandy loam soil. After plowing down this manure and harrowing thoroughly and deeply the leveled place, give the whole area a top-dressing of well-rotted manure which has not lost its value by leeching. Harrow again and ridge the ground as for lettuce. Let the ridges be four or five inches higher than the bottom of the ditches. Each ridge should be about sixteen inches across. The ditches should be about twenty inches wide.

On each ridge set two rows of plants about twelve inches apart. Set the plants about twelve inches apart in the row. From center of ridge to center of ridge will be about thirty-six inches. Horse cultivation will be easily carried on between the rows. Even in the small home garden it pays to conform as closely as possible to the methods used by commercial growers.

### Kinds to Plant

Get the plants right away. Eastern and Northern-grown plants are preferred by many to local plants. Others are successful with locally grown plants. Perhaps the plants from colder sections will bear better the first season. For a family of five put out about 500 plants. They will take considerable space, but with care will give an abundant supply. The little 8x10 bed is only an aggravation and doesn't pay for its cost in trouble.

There are many good varieties of strawberries. The so-called Everbearing is a good berry, but is not, of course, really "everbearing." "Klondyke" is most popular in Southern California. "A-1" is good. "Banner" is very popular in Northern and Central California.

[Albert Etter of Ettersburg, Calif. is one of California's best known strawberry producers. He has originated some excellent varieties ORCHARD and FARM readers will recall an account of his "Bush" berry described in a previous number.]

Keep the plants growing until they stop bearing next fall. Keep the runners pinched off. If you have a strawberry bed already started, clean it up give it a dressing of manure, remove old plants two to four years old which lack vigor, save the young plants which have taken root close by in place of the old one. Pull out the excess plants, which may have rooted since last fall.

### Other Berry Plants

Every garden should have blackberries (or dewberries, which are a variety of blackberry), raspberries and loganberries. The Thornless Blackberry is a favorite. It bears well and is much more pleasant to handle than the old types. Plow, fertilize and ridge for irrigation. Use plenty of manure. Set stakes and trellis before setting plants. Posts and smooth, twisted wire make a good trellis. For blackberries, set the rows about four or five feet apart. Set the posts about ten feet apart in the row and about five feet high, with the first wire two feet from the ground and the wires above the first one a foot apart. Train the canes through the wires. Set the plants about three feet apart in the row.

Prepare the same way for dewberries and loganberries, except the posts may be only four feet high. Raspberries may be grown with wires only three feet high.

### Growing Rhubarb

There are two main varieties of rhubarb, the Winter Giant and the smaller and more highly-colored variety which bears best in the spring and summer. Many prefer the flavor of the smaller kind. It is well to have plants of both "Wagner's Giant" and "Strawberry" rhubarb. Five or six good plants of each kind will supply a family of five and provide rhubarb to combine with tomatoes for preserves. [Some good cooks prepare combinations with rhubarb so that a larger supply is needed.]

Set the plants on ridges, in rows forty inches apart, the plants eighteen inches apart. Let the plants crowd so that the leaves of one plant shade the crowns of those adjacent. Have the soil plowed deep, twelve to fourteen inches at least. Plow down manure. Irrigate regularly. Cut out seed stalks on very first appearance. Some plants may persist in going to seed and have to be destroyed.

### Growing Asparagus

Any home garden having an asparagus bed alongside of rows of rhubarb and berries immediately stamps its owners as people with stability who are worthy additions to the society of the community. Asparagus in the gar-

[illegible], in its indications, is analagous to a [illegible] room or a library in the home.

It takes time and care to start a good asparagus bed. First, one must dig over the soil to 18 to 20 inches deep, putting in a lot of manure. The reason for this is that the asparagus is to grow there for five to ten years or more and needs rich soil to yield abundantly during the cutting season. Get good robust plants and set them about two feet apart. Cover each plant about three inches deep. They can be set on the level and in a bed, setting plants only 18 inches apart in the small garden.

An asparagus bed 6x12 feet, if well cared for, will yield several meals each week for many weeks each year. Give each plant a light sprinkling of rock salt when it is well started, and after that supply a good handful for each plant every winter. Place a heavy coating of manure on the bed once a year. Let the plants grow all season after the cutting is done in the spring. When the tops are permitted to grow, root development is increased, insuring more activity during the following spring.

### "Mother's Herbs"

A good herb garden is a rare thing in any new country. California is sufficiently new, to most of its inhabitants at least, so that about one gardener in fifty makes much if any attempt at growing a variety of herbs.

Mint is very easy to grow. Just plant one sprig in a damp corner, or near a hydrant where it can be watered frequently. Sage should be grown and used more as a meat flavoring. Too many families depend entirely on salt and pepper for meat seasoning. What good mother "back East" would think of putting up her winter sausage without sage, or of baking spare ribs or of roasting pork without a good sprinkling of this pungent herb? Sage may be grown from slips, from root divisions or from seed. The culture is very easy. Set the plants about a foot apart each way and if they are grown from seed, only one picking should be made the first year. All herbs are easily grown and require but little space.

### Planning the Regular Garden

Let the garden space for the annuals be at least 100 feet long and have the rows run the long way. Many things will be planted in double rows with space between for work. The horse or motor cultivator and wheel hoe demand long rows.

The first double row planted now or any time might be onion sets for forty feet and onion seed for sixty feet. A second double row of onion seed might be planted if the family relishes cooked onions. If sets cost 25 cents per pound one will not plant a very large space of them. Sets, moreover, do not always make big onions, because they are often grown too slowly and are old enough to be big onions when harvested as sets. Sets properly grown should make big onions without "throwing" seed stalks.

### Spinach for Health

Spinach is our most important crop for greens. Nothing takes its place for promoting good health. No other plant equals it in the content of mineral salts. It grows well in winter, just as do lettuce, cabbage and cauliflower.

The two main varieties are the thick-leaved "Long Season" or "Long Standing" and the "Prickly-Seeded," with larger, thinner leaves. Sow either kind now or any time during early spring. Just spinach is not a summer plant. It prefers the cool weather.

Chinese mustard is growing in popularity. It is far better than the common Southern Curl, and grows both winter and summer. Endive is an excellent winter salad plant and makes very good greens. Chinese cabbage can be planted now or any time in early spring. These plants are all easily grown and are planted in rows about the same as lettuce.

### Plant These Now

Some other things to be planted now are cabbage, cauliflower, kohl rabi, [illegible] radishes, parsnips, carrots, [illegible] plants of cabbage, cauliflower and [illegible] rather than planting seed. Peas and carrots will [illegible] at this time unless the weather is very [illegible]. Parsnips [illegible] naturally [illegible] Parsnips [illegible] slowly at all times and unless one has a very warm location he had better defer planting for about six weeks.

More people should grow Brussels Sprouts. They have a far more delicate flavor than either cauliflower or cabbage. The small heads grow on the sides of the stalks. If good healthy plants are put out now they will bear during the early part of the coming summer and if kept well-watered and well-manured, will continue to bear for a year or more. They will not stand drought and cannot be grown successfully except on rich soil.


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# YOUR GARDEN of FLOWERS

*by Helen Temple*

HOLLAND ships bulbs to all parts of the world. As soon as these bulbs arrive in the fall they should be planted, either in pots or in a protected spot. The winter growth makes a stronger root system, therefore the blooms will be of higher quality when they are planted as early as possible.

### Growing Dutch Bulbs

The Dutch bulbs, especially the tulip, hyacinths and narcissus, are not particular as to which end grows first, therefore we must make them develop their root system before allowing them to grow too fast above ground. This is accomplished only by storing them in a cool, dark place for a few weeks, keeping them moist but not wet. Where quick blooming is desired, however, the bulbs must be watered freely and kept in a light, warm place. This treatment pertains especially to the growing of bulbs in pots and boxes.

### Protection Often Essential

When planting the Dutch bulbs outdoors, plant along a wall or in some other protected location. If a short period of warm weather should come too early, as is frequently the case in California during late winter and early spring, the bulbs should be mulched rather heavily to prevent their growing too fast. As soon as the weather is settled, remove the mulch and allow them to grow.

These bulbs do well in any medium soil, but thrive best in a rather sandy loam, such as the soil in their native country. In Holland, they grow in sandy soil and are sub-irrigated. Best results are obtained by keeping the soil in a moist condition at all times.

In planting, if they are to be lifted and stored each year, set at a distance apart double their diameter, but when they are to remain in the ground for more than one year, they should be planted in a space six times their diameter.

It is not necessary to lift and store unless they are situated in a location where other plants will be watered during their dormant season. However, if it is necessary to lift and store, the bulbs should be taken up as soon as the bulbs are ripened and the leaves have died down. Store them in a cool, dry place in not more than two layers. Shake all loose soil from them and do not use packing material, unless it is dry. In the fall the bulbs should be re-planted.

BULBS and potatoes require almost the same soil, cultivation and fertilizer. I know this comparison gives the more artistic bulb a rather "common" sound; nevertheless it is true.

### Fertilizer for Bulbs

Fifty pounds of fertilizer suitable for bulbs and "spuds," with the needed nitrogen, potash and phosphoric acid in the right proportions, can be made as follows: Muriate of potash, 10 pounds; sulphate of ammonia, 2 pounds; nitrate of soda, 3 pounds; tankage, 10 pounds, acid phosphate, 25 pounds. However, when one has an abundance of well-rotted stable manure, this fertilizer is not necessary, but, unless the soil is unusually rich, one or the other of these fertilizers should be mixed with the soil for best results.

IF the narcissus bulb is allowed to stay in the ground year after year, it will increase in size and beauty, and bloom more profusely. This, however, is not true of hyacinths and tulips unless growing conditions are most favorable.

### The Narcissi Are Permanent

The Madame Plemp is a new narcissus of two colors. Its petals are pure white and the trumpet a bright yellow. It grows from 15 to 18 inches high. The Van Waveren Giant is said to be the largest narcissus. It has a dark yellow trumpet with primrose-yellow petals. The Paper-white narcissi are especially fine for growing in fiber or water. The Will Scarlet is a novelty, petals, a pure creamy-white and the crown, a bright scarlet with small yellow center.

The double narcissi are beautiful. Alba plena odorata Narcissus is pure white, sweet-scented and very pretty. It is more suitable for a cool climate such as the Coast region, than many of the other varieties. It does best in leaf mold, in a partly-shaded location. This double narcissus should be in our garden of flowers, either outdoors or in the green-house. There are so many varieties of the narcissi, both double and single, that one can hardly choose among them, yet one must plant the variety best suited to the location.

THE La Victoire is one of the earliest dark-red hyacinths. It is a very vivid red and desirable for forcing. There are nearly twenty red hyacinths of all shades and sizes, of the named varieties.

### Varieties of Tulips and Hyacinths

Then we have the pink and rose colors. The Sarah Bernhardt is a bright, rosy pink with a delicious odor. One of the most delicate pinks is the Beauty. There are some twelve or fifteen varieties of the dark blue hyacinths of all shades.

The Charles Dickens is a porcelain-blue and very large. Nigger Boy is unusually dark, as is the Menelik, which is blue-black. The light blues come in sixteen or more varieties.

The Enchantress is one of the prettiest of its color that I have seen. It is a very clear, light blue with an extra fine spike. There are more than thirty varieties of the white hyacinths, among which is the La Grandesse, said to be the finest of all whites. There are a dozen or more of yellow hyacinths. The Ida is one of the finest yellows for forcing. The Buff Beauty is also good for forcing.

The Violet and Lilac hyacinths may be had in ten or twelve varieties. The L'Esperance is one of the best purples and contrasts well with the Ball of Gold Hyacinth, which is a large, compact, golden yellow.

IN January, a thorough spading or plowing of the garden is in order. Work a good amount of well-rotted manure into the soil and leave the ground open. Sunshine and air will do more good than the rake at this time; then, in the early spring, smooth down for planting.

### Garden Work in January

All old weeds and rubbish should be carefully raked up and burned. This removes insects and eggs in their dormant state, besides destroying weed seeds.

Sow calliopsis, arctotis, celosia, chrysanthemum, dianthus, salvia, stocks, aster, centaurea and sweet-peas in the semi-tropical, Southern Coast and mild interior regions.

All deciduous trees and shrubs may well be started in January. This month is also an excellent time in which to divide beds of bulbs such as cannas and caladiums, where they have been undisturbed for several years. Put them in storage until early spring. Spade up their bed as deeply as possible, working in as much old manure as possible.

Start roses in January; also prune the bush roses. Spade well-rotted manure into the soil about the rose roots of all varieties.

### Bulbs to Plant

Plant anemone, narcissus, ranunculus, ixia, lily, tulip, gladiolus, hyacinth

(Continued on Page 41)


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FOR EXCHANGE—10 acres of peaches. Trees only 36 years old—just in their prime. Might swap even for good bearing fig orchard. Address "Fair Dealer," Box 13.

PERSONAL—I recognized my brindle bulldog while in town yesterday and if the tall, slim deacon of the Tenth Baptist Church that was leading him doesn't return the dog at once, I will publish the name of the thief. Ebenezer True.

MONEY TO LOAN—In any amount from $50 to $100. Simply have two or more merchants or bankers sign your note with you. Rate only 1 per cent (per month) and no security. Philanthropic Loan Co. (Isaac Goldschwanger, Prop.)

FOR SALE—Having lost all of my calves, I offer for sale, cheap, a large quantity of Nulife Calf Tonic. A Dairyman, Rt. 4.

## The "Green" Hand

The Boss—"Did you give that sick mule a good drench?"

His Nibs—"I should say so! I turned the fire hose on him for about ten minutes!"

## Different

"IT'S just as wrong to gamble when you win as when you lose."

"Yessah," answered Rastus. "De immorality am just as great; but de inconvenience ain't."

## "System"

Oh, isn't it great to be up-to-date
And live in this year of grace,
With a system and place for everything
Tho nobody knows the place.

We've an index card for each thing to do
And for everything under the sun;
It takes so long to fill out the cards,
We never get anything done.

We've loose-leaf ledgers for saving time—
The Lord knows what they cost;
But half of our time is spent each day
Hunting for leaves that are lost.

It's sectional this and sectional that;
(We'll soon have sectional legs);
I dreamt last night that I made a meal
Of sectional ham and eggs.

I dreamt I lived in a sectional house
And rode a sectional "Hoss,"
And drew my pay in sections from
A sectional section boss.

Oh, isn't it great to be up-to-date
And live in this year of grace,
With a system and place for everything,
Tho nobody knows the place?

## He Played It!

THEY were rehearsing for the opera when the conductor was nearly frightened out of his boots by a terrific blast from the trombone player in the corner.

"What are you doing?" roared the conductor.

"I'm sorry, sir," came the reply. "It was a fly on my music. But," he added, with just a touch of professional pride, "I played him."

## Epitaphs

He chucked a "gentle bull" under the chin.

She started the kitchen fire with gasoline.

He was sure he could beat the train to the crossing.

She struck a match to see if the gas tank was filled.

He picked up a broken wire to see if it was charged.

They played with an old revolver that wasn't loaded.

"Mike was drowned last night."
"Is that true? Couldn't he swim?"
"Yes, but he's a union man; he swam eight hours and quit."

## A Sudden Ending

THE murderer's wife was in the witness box and prosecuting counsel was conducting a vigorous cross-examination.

"Madam, you are the wife of this murderer?"

"Yes."

"You stand by your husband when he murders him?"

"Yes."

"You will continue to contribute a matrimonial alliance with such a man?

"Well," said the witness sarcastically, "I was getting old and had to choose between a lawyer and a burglar."

The cross-examination ended there.

## Circumstantial Evidence

MOTHER—I wish you wouldn't stand on the steps so long with that young man when he brings you home.

She—Why, I only stood there for a second last night.

Mother—Is that all? I really thought I heard a third and a fourth.

**Satisfied Subscribers**—"We are subscribers to Orchard and Farm and like it fine."—Ellen Carlson, Madera, Calif.

# Let Your Neighbors Pay for Your Truck

WITH every farmer the purchase of a motor truck should be a well balanced business proposition, rather than simply a desire to keep up with his neighbor.

Some farmers make the mistake of buying a truck without having enough actual truck work to keep it busy. Such an investment naturally proves costly in the long run. But the farmer with limited truck requirements of his own can readily make a truck profitable by hauling for his neighbor and serving his community.

With the Clydesdale Farm Special, equipped with the four-in-one body, it is possible to haul grain, manure, cement, supplies, livestock, milk and cream, produce, fruit, and every other kind of a load that can be carried on wheels, more quickly and more easily than with horses. The Clydesdale is powerful and strong enough to carry the average farm load practically wherever horses can go. It is simple to operate so that any farm hand can drive it, and it is economical on fuel and tires, because the Clydesdale Controller insures steady pulling power without waste of gas.

A great many farmers own trucks which their neighbors have helped to pay for, and we have an interesting story to tell any farmer who is considering a truck for his own work or as a co-operative investment. Let us send you full particulars with the name of the nearest dealer where you can see Clydesdale advantages for yourself and learn how other farmers establish fair prices for community hauling.

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# Have You a Farm For Sale?

If you have a farm for sale or trade, livestock, machinery, implements, vehicles, poultry, musical instruments, nursery stock, building material, new or second-hand goods of any kind, dogs, rabbits, motorcycles, bicycles, automobiles, sewing machines—in fact, anything you wish to sell—advertise it in Orchard and Farm. A little ad should get you a buyer. Don't delay—mail the ad you desire to use, or let us write it for you. Address Advertising Manager Orchard and Farm, Los Angeles, Cal.

# HELPFUL HINTS for THE HOUSEWIFE

Edited by Isabel Sinclair

### TWO VIEWPOINTS

Once I dreaded the cold fingers of the rain,
And their tapping, tapping on my window-pane
With spirits low I watched the leaden skies—
The sodden, dripping world before my eyes.

But then you came—and gave me this dear home—
And now I love to have the sweet rain come,
By day to emphasize its cozy charms—
By night to bless the rapture of your arms.
—June Francis Dale.
(Written for ORCHARD and FARM. Copyright.)

Dear Friends:

I wonder if we all make the most of California's delicious winter vegetables? Brussels sprouts and cauliflower deserve even greater popularity than they enjoy. By the way, have you tried pickled cauliflower? I sampled some the other day that was delicious. My friend who served it explained how it was made:

**Pickled Cauliflower**

Cut up two cauliflowers and three red, sweet peppers, from which the seeds have been removed, and add one pint of small, white onions. Dissolve one-half pint of salt in enough water to cover the vegetables and let them stand in this brine overnight. Next morning drain off the brine, then add four tablespoonfuls of vinegar and heat until it boils. Add the vegetables and boil for 15 minutes, or until the cauliflower is tender enough to be pierced with a fork. Place in jars and store in a cool, dry place.

**Rug Cleaning Hint**

Here's another little "tip" that I gained through observation. It has to do with cleaning rugs. Of course, many Orchard and Farm readers are so fortunate as to have vacuum cleaners. But if recourse must still be had to the good, old-fashioned method of beating rugs, an old set of bed-springs is an invaluable aid. Of course Johnny regards this Saturday morning job as one of the unnecessary evils, but he will finish it much more quickly and possibly in a better humor, if he has some old bed-springs on which to lay the rugs. Much of the dust falls to the ground and the job is shortened considerably when the springs are used.

Let me take this occasion to wish every single reader of "my" page (and this means a very big family) the happiest and most successful New Year she has ever known. And don't forget that I am anxious to help in solving any of your problems, and that I shall be glad to answer questions by mail if stamped, addressed envelope is enclosed. Sincerely,

Isabel Sinclair

## Storing Furs and Woolens

MAKE a cloth bag sufficiently large to hold the articles to be stored. Crush and dissolve a piece of alum about the size of an English walnut in sufficient boiling water thoroughly to saturate the bag. Wring it out lightly and hang in the sun to dry. When dry it will be covered or veneered with crystalized alum, making it impervious to moths.—O. A. F., Santa Rosa, Cal.

## Keeping Out Dust

CUT felt into strips an eighth of an inch in width and paste very evenly on window jambs, the jambs of bookcases and writing desks or anywhere that dust accumulates. You will find that your books, linen closets and dust catching corners will be made dust proof.—O. A. F., Santa Rosa, Cal.

*The Home is the Hub of the Universe*

## The Place of Meat in the Menu

By Mrs. Belle De Graf

Director, Domestic Science Department, Sperry Flour Company

***Written Especially for Orchard and Farm***

[Alleging that the "propaganda" of the food faddists who seek to eradicate meat from the diet has reached such proportions as to injure the producer of livestock, many breed associations, packers, farmers, and meat dealers throughout the country are cooperating in an "Eat More Meat" campaign. Its purpose is to demonstrate the food value and healthfulness of good meat and to encourage its consumption. In this article, Mrs. De Graf discusses this important subject from the viewpoint of the dietician and cook. All farm housewives will find her paper this month especially interesting and helpful.—I. S.]

MEAT is perhaps the most important article of food in our diet, for it supplies the tissue and the muscle-building material called protein; the fat furnishes energy and heat to the body, and also supplies small quantities of minerals very necessary for growth and development.

Mrs. De Graf

Nearly every American family, if the income will permit, eats meat at least once a day. The question for the housewife to decide is just how much meat her family requires, how to provide this amount at the least possible cost and how to secure variety and quality.

Meat is almost completely digested by a normal person, and the meat-eating nations greatly surpass in vigor those that live mainly on fruit and grains. However, the average American family is in danger of eating too much meat rather than too little.

Only a certain amount can be made use of in the body, no matter how much is eaten, and the system is overtaxed in getting rid of the surplus. Therefore, the housewife should take care that the amount of meat provided is not out of proportion to other foods.

### Comparative Food Values

Red meats, such as beef and mutton, are more stimulating than the white meat of poultry or veal. Beef is the most nutritious, mutton being second. Lamb and and veal are less nutritious than the flesh of full-grown animals. Dried or smoked beef contains as much nutriment as the fresh meat, while corned beef loses in food values, the brine drawing out some of the juices.

All meat cookery is governed by two general principles. For tender, fine grained meats there should be intense heat and no liquid, and the meat should be seasoned after cooking. The high temperature sears the surface and keeps the juice from escaping. The meat is cooked quickly because, being tender, if it were allowed to remain in too great a heat for a long period, it would harden and become dry. It is seasoned after cooking because the salt would tend to draw out the juices, which with tender meats is not desirable. Water is not added because it would cause steam, which would affect the brown, crisp surface of the meat. Plenty of fat should be used for basting.

Coarse, tough meats require quick surface-searing, long, slow cooking and a small amount of water. The meat is seared in order to force it to retain the greater part of the juices, and then cooked slowly in a small amount of water, which may be seasoned during the cooking process. The meat when cooked should be juicy, due to searing, and tender because of the slow cooking.

### What Constitutes Value

The cheaper cuts of meat are just as high in food value as the more tender ones, thus offering the housewife the necessary variety. The value of any cut of meat depends upon the quantity of waste, bone, gristle, etc. Some of the cheaper cuts of meat have so much waste in gristle, fat and bone that they would be equal in price to a more tender meat.

Meat is too expensive a food to be thoughtlessly purchased or carelessly cooked, and the meat bill may be reduced by making more use of the less expensive cuts.

Certain vegetables have been found to go well with certain meats. Turnips usually accompany mutton; or turnips and carrots cut into dice, boiled separately and then mixed and covered with a well seasoned white-sauce. For roast mutton the turnips may be boiled, and after the centers have been removed may be stuffed with well-seasoned soft bread crumbs moistened with milk or cream, then baked. Or bananas may be rolled in crumbs and egg, and fried like croquettes to be served with either lamb or mutton. Green peas or asparagus may be served with lamb. All vegetables are acceptable, but the above are suggested as being especially preferred with mutton and lamb.

### LAMB STEW

About 2 pounds of neck or breast of lamb,
6 small onions,
6 small carrots,
2 turnips cut in quarters,
1 cup of celery cut in inch lengths,
Pepper and salt to season,
1 teaspoon kitchen bouquet
Boiling water to cover.

Cut meat in cubes and place in a sauce-pan. Add boiling water, cover closely and cook slowly about one and one-half hours or until tender; then add vegetables and seasoning and cook until vegetables are tender.

(Or the meat may be cooked in the oven in a closely-covered casserole.)

### STUFFED SHOULDER OF LAMB

Have the butcher remove the blade from the shoulder and fill the space with the following mixture:

1 cup soft bread crumbs,
3 tablespoons melted butter,
1 teaspoon salt,
¼ teaspoon pepper,
1 teaspoon onion juice,
½ teaspoon ground sage.

Sew up the opening. Remove all outside skin. Season with salt and pepper and dredge with flour. Set on a rack in a roasting pan. Have a strip of fresh or salt pork to place on top of the roast.

### ROUND STEAK EN CASSEROLE

Cut round steak in pieces about two inches square, roll in flour and let brown in salt pork fat or drippings; remove to a casserole and add broth or hot water to cover; add more fat to the pan and in it brown a small onion for each service; add these to the casserole; cover and let cook about two hours, or until nearly tender; for each service add two small strips of carrot and half a dozen cubes of potato, parboiled and browned in a frying pan; also salt and pepper as needed, and let cook until the vegetables are tender. Serve from the large dish or in individual casseroles.

### BRAISED BEEF

Braising is steaming meat in its own juices in the oven—a method suitable for solid pieces of meat not tender enough for roasting but of better quality than those utilized in soups and stews.

Continued on Page 40)

## To Polish Glassware

AN EXCELLENT cleanser for glassware can be made very easily by using baking soda and enough cold water to form a paste. Rub this on the glassware, using a little brush, or in the case of drinking glasses rub it on by hand. Rinse in cold water and they will shine like new.—George Fitzgerald, Los Angeles, Cal. (H. H.)

## Sewing Machine Hints

THE quickest way to thread the machine needle is to lay a piece of white goods or paper under the needle, and there it goes!

You can make sewing machine work easier and quicker by lengthening the stitches, by loosening both tensions and gently pulling the under thread, regulating the fullness just as you wish it.—Mrs. M. Merkel.

## Economical Window Screens

ON the outside of the window, at the sash bar, fit a 1x1-inch strip and nail it securely between the casings. It should be fly-proof, but loose enough to allow the window to be raised and lowered. Do not nail to sash. Tack screen to this and to the casing, either upper or lower half of window. This will let in more light than a screen over the whole window, and will prove as satisfactory as a framed screen.—Hugh V. Harris, Sebastopol, Calif.

## To Boil Cracked Egg

Wrap the egg tightly in a piece of clean muslin and tie; the egg then can be boiled without losing the contents.—George Fitzgerald, Los Angeles, Cal.

## Hot Water Bottle Substitute

FILL a small flour sack with hot, dry salt and either sew or tie the top. If too hot, wrap towels around the sack, removing them as the salt cools. This simple expedient is as cheap as it is effective, as the salt can be used over and over again.—George Fitzgerald, Los Angeles, Cal.

[Cornmeal also is useful for this purpose.—Ed.]

## Chocolate Flake Pudding

HERE is the way to make a pudding any family will enjoy: 1 pint milk, 3 cupfuls corn flakes, cupful sugar, 2 teaspoonfuls butter, 4 teaspoonfuls cocoa, 1 egg.

Scald the milk, remove from fire, and add the sugar, butter, cocoa and flakes. When cool, add the egg, well beaten. Pour into a buttered pudding dish and bake in oven for an hour. Serve hot with hard sauce or cold with whipped cream. For variety one-half cupful of raisins may be added. This serves four people.—Mrs. H. C. Clark

## Saving Starch

ON WASH day, boil rice with an extra quantity of water until tender, then strain and set on back of stove to finish cooking. The water drained from the rice makes fine starch, and the rice may be used to make any desired dish.—Mrs. J. T. Lovell, Napa, Cal.

# PRETTY COSTUMES

*Selected by Isabel Sinclair.*

*These costumes are all simple and can easily be made by the home dressmaker from the patterns provided by this department. To secure any of the patterns send 15 cents in silver or stamps to Pattern Department, Orchard and Farm, 1111 South Broadway, Los Angeles. (It has been necessary, because of rising wholesale costs, to increase the price of our patterns, but they still sell at from 10 to 20 cents less than those obtainable at the stores.)*

**3462—Lady's Dress**

Cut in 6 sizes, 34, 36, 38, 40, 42 and 44 inches bust measure. Size 38 requires 6½ yards of 44-inch material. The width of the skirt at lower edge is 1⅞ yards. Price 15 cents.

**3446—Lady's Corset Cover**

Cut in 3 sizes: Small, 32-34; medium, 36-38; large, 40-42 inches bust measure. A medium size requires 1¼ yards of 36-inch material. Price 15 cents.

**3437—Child's Dress**

Cut in 4 sizes: 1, 2, 4 and 6 years. A 4-year size will require 2⅝ yards of 36-inch material. Price 15 cents.

**3147-3447—A Pretty Gown**

Waist 3147 cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Skirt 3447 cut in 6 sizes, 24, 26, 28, 30, 32 and 34 inches waist measure. The width at lower edge is [illegible] yards. A medium size will require 3⅝ yards of figured and 4½ yards of plain material, 40 inches wide. Two separate patterns, 15 cents for each pattern.

**3041—A Practical Style**

Cut in 4 sizes: 2, 3, 4 and 5 years. Size 4 will require [illegible] yards of 36-inch material. Price 15 cents.

**3454—Girl's Dress**

Cut in 4 sizes: 4, 6, 8 and 10 years. An [illegible] size requires 3[illegible] yards of 36-inch material. Price 15 cents.

**[illegible]—Lady's Dark Dress or Apron**

[illegible] medium, [illegible] size 44-46 [illegible]

**3133—Lady's House Dress**

Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A medium size will require 5¾ yards of 36-inch material. The width of the dress at lower edge is about 1⅞ yards. Price 15 cents.

**3464—Girl's Dress**

Cut in 4 sizes: 8, 10, 12 and 14 years. A 10-year size requires 4 yards of 30-inch material. Price 15 cents.

**CATALOGUE NOTICE**

Send 15 cents in silver or stamps for our up-to-date fall and winter, 1920-1921, catalogue, containing over 500 designs of ladies', misses' and children's patterns, a concise and comprehensive article on dressmaking; also "Some Points for the Needle," illustrating 30 or the various simple stitches. All valuable hints to the home dressmaker.

## Use Coupon in Ordering Patterns

Herewith find ..... cents, for which send me the following patterns

Pattern No ..... Size .....

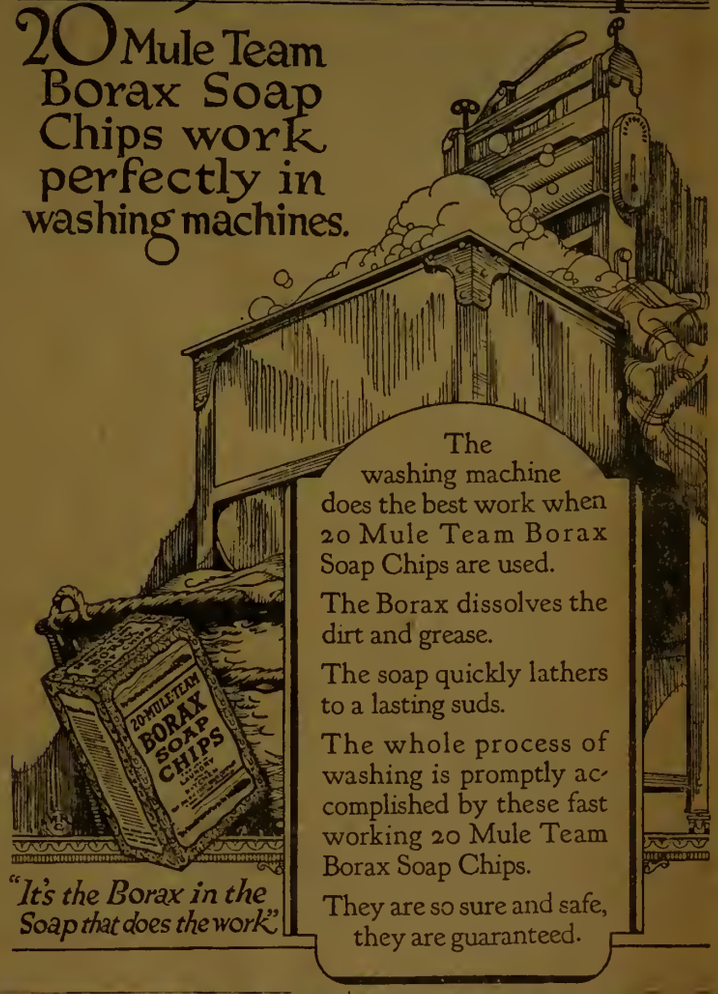
Pattern No. ..... Size .....

Pattern No. ..... Size .....

Be sure to give number and size. Send orders for patterns to ORCHARD AND FARM, 1111 South Broadway, Los Angeles. Be sure to sign your full name and address below


# Why blame the machine? It may be the soap.

20 Mule Team Borax Soap Chips work perfectly in washing machines.




The washing machine does the best work when 20 Mule Team Borax Soap Chips are used.

The Borax dissolves the dirt and grease.

The soap quickly lathers to a lasting suds.

The whole process of washing is promptly accomplished by these fast working 20 Mule Team Borax Soap Chips.

They are so sure and safe, they are guaranteed.

*"It's the Borax in the Soap that does the work"*

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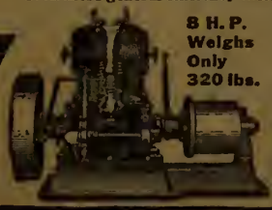

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Smoked Salmon, 20 lbs., $3.40. Dried Codfish, 10 lbs., $1.75. T. A. BEARD, 4322 Winslow Place, Seattle, Wash.

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LEVER CONTROLLED

# Log Saw $125 F.O.B K. C.

Engine, Saw, Etc., all complete. From Pittsburgh add $6.80. Ask for Terms. Folder FREE.

**WITTE ENGINE WORKS**
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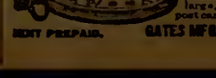
Guaranteed 5 years



American movement, stem wind and set watch, fancy design back, wonderful timekeeper. For selling 54 large, colored pictures or packages post cards at 10c. Order your choice.

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## CLASSIFIED RATES

6 Cents Per Word.

Advertisements must reach us before the 21st of each month. Changes of copy of advertisements running till forhid must be in our hands by the 10th of each month preceding date of Issue. Address, ORCHARD AND FARM, Examiner Building, Los Angeles, Cal.

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# MEXICO

RICH river valley land suitable for practically all crops. The best land selle at only

# $25 Per Acre

With terms. This land is located on the main line of the Southern Pacific Railroad on the west coast. Wa own thie large tract, and are locating American farmers on it. No better land to ba found anywhere. Call or write for information, and make the trip with us.

**International Agricultural and Development Co., S. A.**

719 Merrit Bldg., Los Angelee, Cal.

CARLSBAD-BY-THE-SEA

Here is a district that ie making REAL MONEY out of farm products. The secret is thie· We produca crops out-of-season, in early winter and early spring, when no other districts hava them to offer.

CARLSBAD PEAS NEVER FREEZE

Wa are shipping East one or more cars of peas daily at very high prices. Cucumbers are bringing $3.50 per lug; summer squash $2.50 per crate, etc. This land is selling very fast. Arrange for an early trip to this wonderland. For further information call on or write

SOUTH COAST LAND COMPANY,
E. M. Claussen, Sales Manager,
712 Garland Bldg., 740 So. Broadway, Los Angeles, Cal.

FOR SALE—
4500 ACRES

Finest level, decomposed granite soil, lies outdoors; 4 pumping plants, some alfalfa. Joining orchard lands, subdividing up to $750 per acre. Offered as a whola, sacrifice price of

$100 PER ACRE.

You can pey three or four times the price and get no better.

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FOR SALE—88 acres Oregon River Bottom Loganberry land, adjoining land that produced 4½ tons of berries per acre in 1919 (as per article Page 9, January issue of Orchard and Farm). This le a fina buy for someone that desires a good-sized vineyard or to plat and sell in 5, 10 or 20-acre tracts, no waste land; eli joins county road, three milas east of Sheridan, Oregon. It is a wonderful buy. For further particulars address J. O. Brown, Sheridan, Oregon.

ESCONDIDO

Some rare bargains in orchards, farms, vineyards and chicken ranches. A special snap, 500 acres at $50 per acre. A man that can handle this can clear up $50,000 in next 5 years, NO IF IN IT, only $10,000 first cash payment. No piece in California can you find the BIG THREE, soil, water and climate, eo sure, so picnteful and pleasant as ESCONDIDO VALLEY. Theron J. Smith, Real Estate, Escondido, Cal.

RAISE GRAPES

Buy 19 acres of our grape land at $50 an acre and hnve an independent income in three years. Sold on easy terms. You can arrange with us to plant and care for your land until it le producing. Call or write for descriptive matter. LEROY LEONARD, 524 Black Bldg., 4th and Hill, Los Angeles.

OLIVE, PEACH, GRAPE LAND
120 ACRES

20 acres of which is cleared, fenced; 12 acres of this piece is planted to peachas, apples, grapes, berries.

7-room hotsa; fireplace; emall barn, outbuildings. Price $4000; ona-half cash, balance 5 per cent. W. Rush, Olinda P. O., Shasta County, Cal.

$20.00 AN ACRE

400 acres on Poza River, near Hermoeillo, capital of State of Sonora, Mexico, and about a mile from the Southern Pacific Railroad. Rich eoil, will grow anything, 2 crops each year. Can be irrigated. Titles perfect. Call or writa N. B. Anderson, 329 Ochsner Bldg., Sacramento, Cal.

OREGON—Write for list of Stock, Grain, Fruit and Poultry Ranches in the Grand Willamette Valley. Henry Ambler, Philomath, Oregon. Benton County

## FARMS FOR SALE

ARE YOU SATISFIED?

Doee the homing instinct ever get a reel grip on you? How would you like to have a littla farm where the pure mountain air and tha smell of the pines would put new life into you every day, where the soil will grow almost anything that grows in California, where the water is piped under high pressure to your door for irrigation and domestic purposes, where you have electricity, rural delivery, good schools in a 100 per cent AMERICAN colony, where the prices ara etill within the reach of every one? Write today to the

PARADISE RANCHITA,
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300,000,000 ACRES GOVERNMENT LAND in United States. Send for free, descriptive circular of our 100-page book, "Tha Homeseeker," tells where good farm, timber, grazing land is, or send $2.00 for book direct from the Homeeeeker, Dept. 60, 336 So. Broadway, Los Angeles, Cal.

WRITE for copy of photo-engraved circular giving data of premier gentlemen's Country home and best dairy ranch in Southern Oregon. Finest climate on Pacific Coaet. Box 934, Medford, Oregon.

## COUNTRY PROPERTY—For Sale

FOR SALE OR EXCHANGE—In beautiful Monrovia, 8-room house for country gentleman's home; 2-acre lot, facing on three streets; high, eightly, mountain and valley vlaws; $18,000. O. Park Smith, 810 Wright & Callender Bldg., Los Angeles Cal

GOOD alfalfa and fruit land in Northern Loe Angeles County in the artesian water belt, $60 an acre, one-fifth cash. Send for circulars. R. & L. Ranch, Fay Bldg. L. A., Cal.

BARGAINS—Sand for free magazine. Farms, wild lands for sale. Any kind, anywhere. Western Sales Agency, Minneapolis, Minn.

## FARMS FOR LEASE

A FINE ranch of about 300 acres of bottom land with good pumping plant, house, barn, about 70 acres in alfalfa, and some pasture land. References raquired.

CAMPBELL-JORALMON COMPANY,
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Broadway 3903. 60373.

## GOVERNMENT LANDS

PLENTY OF GOVERNMENT LAND in Oregon and California still to be had for little or nothing. Fruit, grain, grazing, mining, timber. Near to railroad. Ask for free folder, stating kind of land you'll like. RALLY, 312 Grant Bldg., Los Angeles, Cal.

GOVERNMENT land near Saugus; also San Bernardino County. 319 Wilcox Bldg., Los Angeles, Cal.

## FARMS LANDS & HOMESTEADS

$20.00 TO $25.00 PER ACRE—Fina level irrigable fruit and alfalfa lands, abundant water, fertile soil, ideal climete, close to railroad. Write Chamber Commerce, Willcox, Ariz.

## FARMS WANTED

WANTED—To hear from owner of good ranch for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minn.

WANTED—To bear from owner of land for sale. O. K. Hawley, Baldwin, Wie.

## REAL ESTATE—Sale or Exchange

IF YOU WANT to sell or axchange your property, write me. JOHN J. BLACK, 110 St. Chippewa Falls, Wis.

## LIVESTOCK—Sheep, Milch Goats

FOR SALE—Young bred does and milkers; doe kids parfectly markad, registered. All from good milkers. All pricsd right. Pure bred Togg bucks, kids. Always frash does. La Corona Goatery, El Monte, Cal.

## LIVESTOCK—Duroc Jerseys

DUROC-JERSEYS—One "Johnson Defender" boar, 20 months old, also Gilts, Boars and Weanlings by this boar. H. E. Boudlar, Napa, Calif.

ONE-YEAR thoroughbred Duroc Jersey sow, good for breeding purposes, also ona thoroughbred Togganburg billy goat. 1112 Harriman ave., Los Angeles, Cal.

## GUINEA PIGS, MICE, RATS, ETC.

GUINEA PIGS for sale. Blacks, whitee, reds and creams; also broken colors. Write me your wants. J. E. Love, 104 South Rose ave., Lamanda Park, Cal.

GUINEA pigs for sala; solid colors from prize winners. Broken colors, all sizes; reasonnhie. Eureka Caviary, R. 1, Box 48, Burbank, Cal.

GUINEA pigs wanted; laboratory stock, males or females, all sizes. Eureka Caviary, R. 1, Box 48, Burbank, Cal.

## BEES AND BEE SUPPLIES

BEE KEEPERS' ITEM

Notice: In sanding letters to thie department or questions to bc answered, pleasa send snme direct to Morris Spencer, Sawtelle, Calif., before 20th of month and same will be published in next month's issue.

## AUTOMOBILES.

BARGAINS IN USED CARS
Big Reductions

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| Cleveland 5-pass. | $1500 |
| 1920 Paige, 7-pass. | $1800 |
| 1920 Velie, 5-pass. | $1200 |
| 1920 Maxwell | $ 900 |
| 1917 Scrippa-Booth chummy roadster | $ 450 |
| 1918 Buick, 7-pass. touring | $1150 |
| 1918 Buick, 7-pass. touring | $1050 |
| 1915 Paige coupe | $1400 |
| 1919 Oakland roadster | $ 200 |
| 1919 Studebaker, 5-pass. | $1250 |
| 1919 Oakland, 5-pass. | $ 625 |
| 1919 Chevrolet, 5-pass. | $ 650 |
| 1915 Stutz racer | $ 700 |
| 1916 Oldsmobile, sport model | $ 750 |
| 1917 Overland 23-B | $ 500 |
| 1919 Overland 90 | $ 750 |
| 1917 Maxwell, 5-pass. | $ 350 |
| 1916 Overland, 5-pass. | $ 350 |
| 1919 Reo sedan | $1200 |
| 1918 Dodga touring | $ 800 |
| 1918 Velie, 5-pass. | $ 800 |
| 1918 Marmon | $2000 |
| 1919 Peerless, 7-pass. | $1550 |
| 1919 Anderson, 5-pass. | $1200 |
| 1918 Maxwell, 5-pass. | $ 450 |

Also several othars not listed. Look thesa cars over before buying and sava $100 to $300. Trial allowed and cars fully guaranteed. Money back if cars not satisfactory. Your old car taken in exchange.

We have surc cut the prices. Call or write and wa will convince you. Open evenings and Sundays. Time payments arranged.

CENTRAL MOTOR SALES CO.,
3320 S. Main, Los Angeles.

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**Learn Autos & Tractors**

Repniring and operating all makes; can earn while learning. Positions secured. Day, evening classes. Booklets free. Writa LOS ANGELES AUTOMOBILE ENGINEERING COMPANY,
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WANTED—Bceman or other small tractor outfit. State price. G. H., Route 8, Box 467, Los Angeles

## SECOND HAND MACHINERY

EVERYTHING SECOND-HAND—All kinds stoves, plumbing supplies, pipe, farm tools a specialty Noah's Ark, 609 East 1st st., Los Angeles. Phona 19750.

## ENGINEERING

GET maximum income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, Cal.

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BARTLETT PEARS
TILTON APRICOTS
J. H. HALE PEACHES

and other stapie Nursery Stock. Fruit Trees are still scarce. Ordar now. All stock guaranteed. Washington Nursery Co., Toppenish, Wash., Dept. O.

CORY Thornless Mammoth Blackberry, originated here at Mountain Pass Ranch. Strong plants, $3 dozen, postpaid also Phenomenal, Logonberry, Gooseberry, Currant and Giant Crimson Rhubarb G. S. Wills, Jamestown, Calif.

CORY THORNLESS Mammoth Blackberry. Write for descriptive price list. Get your plants from the grower. Wm. Mortenson, Rt. A, Box 209, Lodi, Cal.

TRY US—"Reliable" Fruit Trees, Plants, Grain and Garden Seeds, on approval. Write J. L. Lawson, San Jose, Cal

FOR SALE—Apricot seedlings. J. C. Hayes, R. 1, Box 183, Hughson, Cal.

## STRAWBERRY PLANTS

STRAWBERRIES—1,000,000 plants, leading varieties; 200,000 Cuthbert Raspberry; 100,000 Black Cap tips, 100,000 Loganberry tips. Ordar now, low prices. Also 100,000 choice Peach Seedlings; will graft in plums or prunes on contract for fall delivery 1921. Lafayette Nursery Co., Lafayette, Ore.

STRAWBERRY plants; rigid inspection guaranteed. Everbearing, $1.50 per 100, prepaid. New Oregons, Gold Dollars, Premiers, Magoons, $1 per 100, prepaid $7.50 per 1000, prepaid. Order now J. W. Vinacke, Canby, Oregon.

GROW Strawberries in your back yard; 36 selected plants by parcel post, $1. F. W. Wit, 24 California St., San Francisco.

## FIELD SEEDS, GARDEN STOCK

RELIABLE CABBAGE SEEDS

I grow them. You want them. Let's get together. Write ME for special TRIAL offer on just what you will need. Isaac F. Tillinghast, 26 Podel St., Santa Rosa, California.

CHOICE onion seed, Australian Brown, $1.25 per pound postpaid. F. A. Polke, Atascadero, Cal.

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150,000 ROLLS OF BEAUTIFUL PATTERNS AT SPECIAL PRICES TO MAKE ROOM FOR FALL STOCK
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SPECIAL SALE
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WALL BOARD SECONDS, $36
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NAILS AND CEMENT 6c EACH
House Paints, $2.25 and up, Enamel, $3
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CONSUMERS' WHOLESALE PAINT WORKS,
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Save Half

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| Flat, Ivory and White | $2.25 |
| Ivory and White Enamel | $3.50 |
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**Angeles Roofing & Paper Co.**

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Phone Broadway 5401. Los Angeles, Cal

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AGENTS—Mason sold 18 sprayers and autowashers one Saturday; profit $54; square deal, steady work. Write Rusler Company Johnstown, Ohio.

## HELP WANTED

RAILWAY mail clerk examinations coming everywhere. Hundreds men, women, over 17, wanted. $1800-$2300 year. Write immediately for list positions. Franklin Institute Dept. F133, Rochestsr, N. Y.

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KENTUCKY'S extra fine chewing and smoking tobacco. Aged in bulk, 2 years old; nice and mellow. Long silky leaf best grade, 15 pounds, $6.80; second grade, 10 pounds, $4.00, postpaid. Satisfaction guaranteed. Reference, First National Bank Bardwell. Adams Brothers, Bardwell, Ky.

LEAF TOBACCO, prepaid, 2 lbs., chewing $1.30, 3 lbs. good smoking $1.25, 5 lbs. mild, $1.30, guaranteed. Aden Francis, Dept X, Dresden, Tenn.

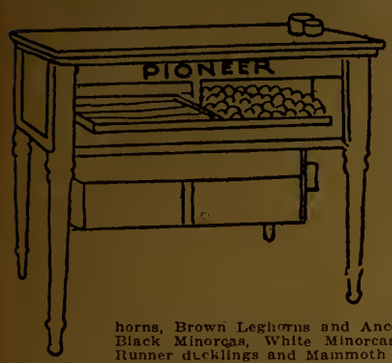
## BIRDS, DOGS, PETS

WANTED to buy, canaries, parrots, dogs, cats, guinea pigs, animals, birds. Baker's Bird Store, 1176 Market St., San Francisco

# FARMERS' CLASSIFIED MARKET PLACE

## POULTRY

## Pioneer Incubators---Baby Chicks




Immediate delivery can be had on Pioneer Incubators in 540, 270, 135, 110 and 72-egg sizes, either electric, gas or coal oil machines; these are absolutely the best incubators made and when better ones are manufactured we will handle them.

Also fireless brooders in 100, 50 and 25-chick sizes. Pioneer hot water brooders in 200 and 100-chick sizes. Kresky brooder stoves, 500 to 1500-chick sizes. "Chic-Elec" electric hovers, 150 to 600-chick sizes. "Reliable" Blue Flame hovers, 100 to 500-chick sizes. Cycle hatchers, the best 50-egg incubator on the market. Poultry supplies, remedies, feeds, etc., always on hand.

**BABY CHICKS—35,000 EVERY WEEK**

We can supply baby chicks in any quantity and can handle single orders in 5000 lots of R. I. Reds, Barred Rocks, White Leghorns, Brown Leghorns and Anconas; and we will have a limited supply of Black Minorcas, White Minorcas, White Rocks, White Wyandottes, Indian Runner ducklings and Mammoth Bronze turkeys. All our chicks are hatched from selected eggs supplied from thoroughbred flocks owned by experienced breeders who have been connected with us since we first started in business fifteen years ago. Send for price lists and catalogues and place your order soon to avoid disappointment on delivery. Finest incubator, brooder and baby chick display in the city. Visitors welcome at all times.

**PIONEER HATCHERY, 320 So. Spring St., Los Angeles, Cal.**

"WORLD'S LARGEST BABY CHICK HATCHERS."

## Hanson's S. C. W. Leghorns

**WIN IN EGG SAVING CONTESTS.**

**PULLET FLOCK AVERAGE 221 EGGS.**

**Send for Free Circular.**

## J. A. HANSON,

## Corvallis, Oregon

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LARGEST shippers of chicks, pullets, breeders in South; 140,000 electrically hatched; 200-290-egg Leghorns, Anconas, Reds, Rocks, Minorcas, Wyandottes, Andalusians, ducks, turkeys; half booked for season. Many choice open dates, reasonable. Hundreds laying; younger pullets, breeders, reduced till surplus goes. W. Beeson, Pasadena, Cal. Write (am rarely home).

---

BUY EARLY CHICKS

Early hatched chicks are the best always. They are stronger, much easier to raise than late chicks, mature and lay earlier, develop into larger and better birds. We are now booking orders for early hatched chicks. Do not fail to place your order in time for the early hatches. Several varieties, from our own breeding pens. Circular sent upon request. Beresford Poultry Farms, San Mateo, Calif.

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BABY CHICKS—EGGS—Hoganized White Leghorns (none better), Brown and Buff Leghorns, utility Rhode Island Reds and Barred Plymouth Rocks, choice Anconas, Black Minorcas and Blue Andalusians, bred for heavy egg production. Free folder. Order early. McDonald Poultry Ranch and Hatchery, Route 1, Box 246, King Road, San Jose, Calif.

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BABY CHICKS — Purebred Schlotthauer Strain Single Comb White Leghorns, bred to lay. All breeding stock carefully selected and Hoganized for thirteen years to insure heavy laying and strong, hardy chicks. Guaranteed safe delivery, and full count. Write for booklet. White Plumage Poultry Farm & Hatchery, Exeter, Cal.

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BARRED PLYMOUTH ROCKS — "Nothing better in poultry." Wonderful layers. Hens and pullets for sale; also choice cockerels that will improve your flock. Now booking orders. Have made a specialty of Barred Rocks for over twenty years; "that's why" our birds win at all the leading shows. Catalog free. Vodden's Rockery, Los Gatos, Cal.

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MOUNTAIN VIEW ELECTRIC HATCHERY —Pure blooded and standard-bred S. C. White Leghorns, Amos Strain. Fine cockerels now for sale; winners at State Fair, 1919-1920. Booking orders now for baby chicks for February, March, April, May and June. L. J. Amos, Mountain View, Calif.

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FOR SALE—Single Comb White Leghorns, cockerels, of Rancho del Martino strain, [illegible] and up. Mothers, 4 hens laid 600 eggs [illegible] months, pullets laid first eggs when 4 [illegible] and 3 days old. Eggs for hatching, [illegible] per 15 or $5.00 per 100. Riverside [illegible] R. A. Box 15A, Oakdale, Cal.

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[illegible]ARDS SINGLE COMB REDS [illegible] State Fair, 4 Firsts, 2 Seconds [illegible] sale. Reds largest class [illegible] cockerels and pens. [illegible] FAIRM. 39B South Lincoln [illegible]

---

[illegible] Rhode Island White [illegible] $5, $10, [illegible] Key [illegible]

---

SPECIAL DELIVERY BABY CHICKS

We have the following varieties of thoroughbred chicks every week: White Leghorns, Anconas, R. I. Reds, Extra Fancy Dark R. I. Reds and Barred Rocks. All chicks are from carefully selected eggs and rigidly culled flocks.

This year all chicks are sent by Parcel Post Special Delivery, thus delivering at your door chicks in the best possible condition and in the shortest length of time. You should send for price list and put your orders in early.

ORANGE COUNTY HATCHERY, Harold C. Hebard, Prop., Santa Ana, Calif.

---

WHY

Because they are properly hatched and handled and we can supply chicks

EVERY DAY

—We guarantee a full count of live chicks at destination on lots of 25 or more.
—Poultry—all breeds. Send for Price List.
—EVERYTHING IN HAIR, FUR AND FEATHERS.

FANCIERS' EXCHANGE,
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BABY CHICKS—Barred Rocks and Reds from extra fine bred-to-lay stock. Repeated orders and letters prove that our chicks are the best. We ship by parcel post or express. 25, $5.00; 50, $10.00; 100, $20.00. Hargett & Son, Route 2, Compton, Cal.

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SANTA Cruz Hatchery. Established 1910. Hatching from select stock of best layers. All breeds, but White Leghorns a specialty. Eric Rosenquist, 24 Minnie St., Santa Cruz, Cal.

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WATCH US GROW—"Quality Chicks." We are now booking orders for the season of 1921. White and Brown Leghorns, R. I. Reds and Barred Rocks. Order early. E. W. Ohlen, Campbell, Cal.

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BABY CHICKS—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. Schellville Hatchery, Schellville, Sonoma County, Cal.

---

DAY OLD CHIX—Barred Rocks, R. I. Reds, Buff Orpingtons, Black Minorcas, Anconas, Buff, White and Brown Leghorns. ENOCH CREWS, Senbright, Cal.

---

ATASCADERO Poultry Farms, owned by Lewis Foundation Corp. S. C. White Leghorns, Rhode Island Reds, baby chicks. Henry Miller, Supt., Atascadero, Cal.

---

WHITE Leghorn baby chicks booked for February. Straight Tancred strain. Excellent layers; 35 years a breeder. Henry Tarratt, Corning, Cal.

---

FOR success raise Brown Leghorns. "IDEAL" Brown and White Leghorns, WIN, LAY, PAY. Catalog on request. John D. Roberts, Box 53, East San Diego, Cal.

---

BABY CHIX

We hatch R. I. Reds and Black Minorcas from good stock. Guarantee safe arrival. Denton Poultry Yards, Campbell, Cal.

## POULTRY

CAPACITY 170,000 EGGS
30,000 CHICKS EVERY WEEK

The spring season will soon be in full blast now and we are prepared to take care of our customers on any size order.

Entirely an electric hatchery, insuring you the best chicks from the best eggs; properly handled, honestly counted (two extra chicks to the hundred); promptly delivered by parcel post or express anywhere within 72 hours' run from Los Angeles.

We surely have your favorite breed in the following kinds: Rhode Island Reds, Barred Rocks, Anconas, Black and White Minorcas, White or Silvered Laced Wyandottes, Brown Leghorns, Buff Leghorns; also our dependable Oregon McFarland White Leghorns.

Pekin ducklings and baby turkeys.

Why not send for price list and place your order for early delivery?

REDWING HATCHERY,
2030 E. Florence Ave., Los Angeles, Cal.
Phone South 5035W.

---

THE MISSION HATCHERY

Are you planning for your early chicks? We are, and booking orders for R. I. Reds, Barred and White Rocks, Black Minorcas, White, Brown and Buff Leghorns—January delivery and later. Write us for prices and particulars, stating your needs. Eggs from breeding stock of quality. Chicks hatched right and carefully packed for safe delivery, express or parcel post, at reasonable prices. We aim for the good will of satisfied customers. Will you try us out?
The Mission Hatchery, Box 7, Campbell, Cal.

---

FOR SALE—One million S. C. White Leghorn baby chicks from heaviest laying (Hoganized) stock for Spring 1921 delivery. January prices, $5.00 per 25, $10.00 per 50, $18.00 per 100. Special prices 500 and 1000 lots. Safe delivery live, vigorous chicks guaranteed. No money in advance; pay on delivery. Order early chicks now and realize big broiler profits. Finest hatchery in the world. Established 1898.

MUST HATCH INCUBATOR CO.,
432 Seventh St. Petaluma, Cal.

---

MORRILL POORMAN STRAIN White Leghorns and R. I. Reds, hatching eggs and baby chix. 25 years of trapnesting records. Leghorns, 304-311 eggs; R. I. Reds, 236-298 eggs. Eggs, 25c and 35c each. Chix 35c and 60c each. Elmhurst Poultry Farm, 5217 T St., Sacramento, Cal.

---

COCKERELS, White Leghorns from 240 to 280-egg hens mated to cocks of the 280-egg type. Bred for 17 years for vigor, heavy laying and standard requirements. Trapnested and Hoganized. McFarlane and Barron strains. Hatching eggs and chicks. A. Worel, R. D. 3, Napa, Cal.

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BABY CHICKS from good layers. Booking orders now for 1921 delivery, R. I. Reds, Barred Rocks, White Rocks, White Leghorns, Brown Leghorns. Safe arrival guaranteed. Write for circular. Stubbe Poultry Ranch and Hatchery, P. O. Box 67, Palo Alto, Calif.

---

BABY chicks from my pure bred, heavy laying flock of S. C. White Leghorns, carefully selected for standard and laying qualities. Orders for spring delivery booked now at $15.00 per 100; $70.00 per 500. Write for particulars. Order early. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

---

POULTRYMEN and those interested in poultry, I want you to read about Scientific Poultry Raising. A free 28-page booklet. Don't miss reading it. A thought provoker. Drop postal to A. E. Bourke, Box 1133, San Diego, Cal.

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WHITE LEGHORN BABY CHIX from heavy-laying HOGANIZED STOCK. Safe arrival of full count, live, strong chix guaranteed. Price list and interesting literature on application. The Pioneer Hatchery, 418 Sixth st., Petaluma, Cal.

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CHICKS HATCHED ELECTRICALLY are the best. They have the "pep," therefore easier to raise, grow faster, develop into layers sooner. Write for prices, catalog and information. Petaluma Electric Incubator Co., Petaluma, Calif.

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THOROUGHBRED Light Brahmas and Rhode Island Red cockerels for breeding. Hatching eggs, Light Brahmas, Buff Orpington, Rhode Island Reds; Penciled Indian Runner drakes. F. H. Krelle, 128 S. Gage St., Los Angeles, Cal.

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FINEST HATCHERY in the WORLD. White Leghorn baby chicks, hatched right in $60,000 brick and concrete hatchery from our trapnested and Hoganized heavy layers. PEBBLESIDE POULTRY FARM, Sunnyvale, Cal.

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S. C. WHITE Leghorn baby chicks from our own Bred-to-Lay stock. Now booking for January to July delivery. Our prices are right. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

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FOR SALE—200,000 S. C. White Leghorn chicks from Hoganized stock. Spring delivery C. O. D. by express or parcel post. Price $14.50 per 100. DeLaney Hatchery, 1146 West 35th St., Los Angeles, Cal.

---

THOROUGHBRED utility S. C. White Leghorn chicks from heavy layers, Hoganized and trapnested stock, 100 or 1000 lots. Write today for hatching dates and prices. Forster Brothers, 2918 Otis St., Berkeley, Cal.

## POULTRY REMEDIES

ARROW CARBOLINEUM kills chicken mites in poultry houses. Preserves wood against rot and premature decay.
CARBOLINEUM WOOD PRESERVING CO.,
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Germain Seed & Plant Co., Los Angeles, Cal.

## POULTRY

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### The Kind That Live

Our baby chicks are the best that money can buy. Be satisfied with no other. All electrically hatched. We handle all varieties at all times from the best selected stock for egg production and true type birds.

### We Help You Raise Them

By instructing you how to raise baby chix and for $5.00 will send you a box containing the entire equipment, food included, to raise 100 chicks for three weeks with the least possible loss.

Write us today.

### Reliable Poultry Company

648 San Fernando Road, Los Angeles, Cal.

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"EASTMAN'S Bred-to-Lay" trapnested Barred Rocks, JANUARY CHICKS. Fairmead Poultry Farm, Fairmead, Cal.

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GIANT BRONZE TURKEYS

Large turkeys can be raised at practically the same cost as small ones. It is in the strain. One of my toms will give you five more pounds of meat to market in all of his get the first year, besides vitality and beauty.

GOLD NUGGET STRAIN

Again win at California's two greatest shows, Gold Special Sweepstakes for best turkeys at California State Fair, 1920, against sixty-six of the State's best turkeys; also every first, second and third prize and Gold Special Sweepstakes at Los Angeles Livestock Show, 1920.

The Gold Nugget Strain have continually proved their superiority by winning Gold Special Sweepstakes at every show exhibited in the last six years, including six State fairs and all the largest shows in the West.

AN UNEQUALED RECORD

Toms and eggs for sale; also a few high class exhibition toms to win in any show. Circular after first of year.

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Originator of Gold Nugget Strain,
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TURKEYS AND GEESE

Mammoth Bronze turkeys. Eggs from my 18-lb. 2-year-old hens mated to 35-lb. gobblers, ready now, $35-100. Fertility guaranteed. Breeding gobbler and 2 hens, $35; Toulouse geese, $12 pair; goose eggs, $35-100. Inglewood Poultry Co., Box 242 Inglewood, Calif.

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TURKEYS—"Goldbank"-"Copper King V" strain. Selected giant bronze toms. Sired by son of famous "Copper King V," first prize yearling, N. B. T. Club Show, Madison Square, N. Y., January, 1919. Bred to 20-lb hens. Egg orders taken. Prices reasonable. Address Bronze King Mountain Farm, P. O. Box 308, Calistoga, Cal.

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RAISE Himalayan, the only genuine fur rabbit; $5000 per year from 50 does. Young stock, $8 pair. Catalog free. Himalayan Fur Farm, Sta. B., Box 566, Pasadena, Cal.

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HART'S MAMMOTH BRONZE TURKEYS. Large, well-marked yearling hens. Thrifty young stock of both sexes. Single birds, pairs, trios, etc. Eggs in season. Albert M. Hart, Clements, Calif.

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MAMMOTH Bronze Turkeys; large, vigorous, well marked birds. All ages. Priced right. Limited number. A. W. Ganger, Dos Palos, Cal.

## DUCKS

CALDWELL'S WHITE MUSCOVY DUCKS win, weigh, lay and pay. The largest duck of the duck family. The duck without the quack. Eggs, ducklings, breeders. Free circular. Caldwell Duck Ranch, Lock Box 274, Los Angeles.

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MR. FARMER, rabbits are always profitable. Use good judgment selecting your breeding stock. We carry at all times 700 high grade, large, healthy rabbits, pedigreed or utility, to choose from. Moderate prices, shipped anywhere, guaranteed satisfaction and delivery. Rabbit Farm, 3723 Moneta ave., Los Angeles, Calif.

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WE WANT RELIABLE PEOPLE to raise Fur-Bearing Rabbits for us in their back yards, spare time. We furnish stock and pay $3.50 to $7.50 each for all you raise. SUNSET FUR CO., 507 Lankershim Bldg., Los Angeles, Cal.

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FOR SALE—Pedigreed Flemish Giants, breeding stock from 16 to 18-pound strain, $5 and up. S. Luther Haven, 3809 Denker Ave., Los Angeles.

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PEDIGREED Flemish Giants; also utility stock; no fancy prices. Mrs. T. Beeching, 1578 W. 46th St., Los Angeles, Cal.

Other Classified Advertisements on Page 42.

Whether it's a "little party" or a "big affair" Ghirardelli's is a great comfort to any hostess [big or little]. Cups of creamy, hot chocolate, chocolate layer cake, "fascinating" squares of chocolate fudge [not to mention a host of other goodies] —you can rely on Ghirardelli's to be the life of the party.

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Since 1852 D. GHIRARDELLI CO. San Francisco

GHIRARDELLI'S
Ground Chocolate


# The Place of Meat in the Menu

Continued from Page 38)

The retention of steam under a cover, together with basting with the broth, keeps the meat moist enough to permit the juices to flow, while the oven heat is intense enough to develop a rich flavor in both meat and broth.

Three pounds beef from lower part of round, two thin slices of fat, salt pork, carrot, turnip, onion, celery, one-quarter cup each, cut in dice. Salt and pepper. Try out pork and remove scraps. Wipe meat, sprinkle with salt and pepper, dredge with flour, and brown entire surface in pork fat. When turning meat, avoid piercing with fork or skewer, which allows the inner juices to escape. Place in deep, heavy pan or earthen pudding dish, and surround with vegetables and three cups boiling water; cover closely and bake four hours in a very slow oven, basting every half hour and turning after second hour. Throughout the cooking the liquid should be kept below the boiling point. Serve with horseradish sauce (see below) or with sauce made from liquid in pan.

### HORSERADISH SAUCE

One-quarter cup freshly grated horseradish, ¼ cup soft bread crumbs, ½ teaspoon salt, 1 cup white sauce, ¼ teaspoon paprika, 2 tablespoons lemon juice, 1 tablespoon vinegar. Mix horseradish, bread crumbs, salt, paprika and white sauce. When hot, add lemon juice and vinegar.

### SHOULDER OF PORK

Have bones removed from the shoulder of a young pig. Make a dressing by mixing two cups of soft bread crumbs, seasoned with one-half teaspoon each of salt, pepper, sage and a little chopped celery; moisten with one-third cup of melted butter and fill the space where the bone was removed. Take a few stitches with a larding needle to hold the dressing in place; dredge the meat with flour and place in a moderate oven; baste frequently. Peel an apple for each service. For six apples make a syrup of one cup each of sugar and water; cook the apples in syrup, turning often and taking care not to break. When tender, remove to a pan, sprinkle with sugar and brown in the oven. Use as a garnish for the pork.

### ROAST MEAT

Roast meat should be placed in a hot oven to sear the outer surface as soon as possible, thus preventing the rich juices from escaping.

When the surface of the meat is brown, the heat of the oven should be reduced and the cooking continued more slowly.

A medium-sized roast should be basted at least four times during the cooking, and at the last basting the salt and pepper may be added.

Beef and mutton are roasted fifteen minutes to the pound, veal and lamb twenty minutes for each pound, with an additional fifteen minutes.

### LAMB CURRY

Cut two pounds of neck or breast of lamb into cubes. Put in a kettle and cover with boiling water. Add one onion, a piece of thyme and a little parsley. Simmer gently until meat is tender; then remove meat and strain the liquid. There should be four cupfuls. Melt three tablespoons of shortening, add four tablespoons of flour, salt and pepper and one teaspoon of curry powder and mix until well blended. Cook until frothy, then add the strained liquid and cook until thick. Add meat to the gravy and serve with a border of cooked rice. Curry powder varies in strength and the amount given may not season the sauce sufficiently. As there is danger of getting the dish too "hot" with curry, care should be taken in the quantity used.

### LAMBS' KIDNEYS

Cut kidneys in slices and sprinkle with salt and pepper. Melt two or more tablespoons of shortening in a frying pan. When hot, put in the kidneys and cook about five minutes, dredge thoroughly with flour, season with salt and pepper and add a cup of boiling water. Cook five minutes longer. Season with a little lemon or onion juice. Kidneys are tender if cooked a short time, but will toughen if cooked too long.

*A Model, Convenient Kitchen*

*What woman would not take pride in such a kitchen as this, which, however, is more conspicuous for its convenience than for the cost of its equipment. Few modern homes have large kitchens. Compactness, combined with careful arrangement and good ventilation, is rather to be desired. Study the labor saving features of this "food-factory."*

## How to Make Mock Turkey

BUY a piece of veal, breast or shoulder, and ask the butcher to cut a deep pocket in it. Then prepare the filling in this way:

Take two good-sized onions, a handful of celery and a little parsley. Chop this up very fine, frying it in a pan until nearly cooked. Have some rice cooked previously in salted water with a speck of butter and about half a pound of sausage meat. Season with salt, pepper, sage, thyme, and a very little garlic. Chop up one bay leaf if you can get it and add a few cracker crumbs.

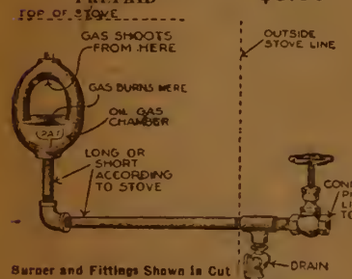
Two well-beaten eggs should be added to complete the recipe.

Mix all these ingredients to the best of your ability, and then fill the pocket and sew it up as you would the pocket made in a turkey. Tie three pieces of fresh fat around the roast and put it in the pan, and then cook slowly. In two to three hours take the fat off replacing it with boiling water. Mrs. M

## Trimming a Lamp Wick

I HAVE found that by cutting a lamp wick so that there are three points, one in the center and one on each side, in order to throw the light out to the sides, one secures better light. Mrs. F. C. Tierney, Halls Valley, Cal.


The Premier Burner
ALL ONE PIECE
MONEY BACK GUARANTEE
THE BURNER PREPAID $5.00

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Red Seal Continental Tractor Engine, Draw-Bar Rating 10, guaranteed 12 h. p. No differential. Turning radius 7 ft. All bearings "Timken," including front wheels. Complete transmission dust proof, enclosed, running in oil.

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A positive relief for all cases of rheumatism, bruises and sprains. Sent postpaid. Price $1.50 a bottle.
Write
W. A. Evans Pharmaceutical Co.,
1707 Baker St., San Francisco, Cal.

# The Flower Garden

(Continued from Page 34)

and sparaxis, of the bulbous plants. Dahlias also may be planted. All of these should be hurried into the ground if this year's blooms are expected. Provide good drainage and fertilizer in every case.

Helen Temple

Shasta daisies, verbenas and geraniums should be started this month in our mild regions. They are very hardy, but will not "make headway" where it is very cold.

---

QUITE often the question of honey-yielding plants arises. I used to think that every flower was a pasture for the bee, but after watching the bee and questioning bee-keepers I have learned otherwise. The following are ordinary honey yielding plants and flowers, alphabetically arranged:

**Concerning Honey Plants**

Alyssum, Anchusa, Arabas, Balm, Bartonia, Bachelor's Button, Basil, Borage, Calliopsis, Clarkia, Clover (alsike and bokara), Cleome Pungens, Dahlia, Gilia, Honeysuckle, Lupine, Malope, Marvel of Peru, Mathiola, Marjoram (sweet), Mignonette, Nasturtium, Nemophila, Nigella, Petunia, Phacelia, Phlox, Sage, Savory, Scabiosa, Stocks, Sweet-peas, Sweet Rocket Sunflower, Wallflower, Whitlavia and Thyme. If you are planting a garden to help the bees, those named will furnish good "pasture."

## Questions Answered

***The Flower Garden Editor will be glad to answer the questions of Orchard and Farm plant lovers concerning specific or general problems. Write your name and address plainly and address: "Flower Garden Editor, Orchard and Farm, 1111 South Broadway, Los Angeles." Always enclose stamp for reply.***

## Questions and Answers

I intend planting climbing roses this fall, but am undecided which are best for beauty and least susceptible to mildew and rust. Would like to know why my lilacs fail to bloom.—Mrs. A. M., San Francisco, Cal.

A good list of recommended climbing roses for our State is Reine Marie Henriette, Pink Cherokee, Climbing Kaiserin, Lamarque and Dorothy Perkins. The Shower of Gold is a very nice yellow rambler; then we have the Crimson Rambler, which also is very hardy. The Thousand Beauties is very robust, almost thornless, and does not mildew or rust.

If the lilacs are in good condition, with bright and healthy foliage, very likely they lack the opposite sex in their number. Lilacs will not bloom unless there are both sexes in the neighborhood, at least, so that they may be pollenized. Then, too, sometimes lilacs will miss a year of blooming, owing to different climatic conditions. There have been many complaints of lack of blooms from lilacs this year, which I believe, is due to our unusual weather conditions.

What will make a quick-growing lawn for baby to play upon that will not need much care? Are lippia and carpet-grass the same?—Mrs. H. S., Bear Creek.

Lippia grows quickly and does not need much care. The rough treatment children usually give a lawn seems to agree with it. However, if you live in a locality where bees are numerous, I would not advise lippia or carpet-grass for the baby to play upon. Bees feed upon the blooms of both grasses. You might have good success with Bermuda grass. It is a strong, [illegible] but "runs out" in a few years.

# Roll Call of Owners

It is interesting to note that the most successful ranchers, ranch development companies and water producers throughout California and Arizona prefer Layne & Bowler Pumps. Among the 6000 owners are included:

| | | L. & B. Plants |
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| Sacramento Valley Colony Co. | Hamilton City | 86 |
| Boston Land Co. | Henrietta | 34 |
| Southwest Cotton Co. | Avondale, Ariz. | 32 |
| R. P. Davie | Marinette, Ariz. | 31 |
| Tucson Farms Co. | Sahuarita, Ariz. | 22 |
| James Ranch | San Joaquin, Cal. | 22 |
| Bastanchury Ranch | Fullerton | 15 |
| Inspiration Consolidated Copper Company | Miami, Ariz. | 11 |
| Irvine Company | Tustin | 11 |
| Lerdo Land Co. | Lerdo | 8 |
| Los Alamitos Sugar Co. | Los Alamitos | 8 |
| Alameda Sugar Co. | Woodland | 7 |
| Salinas Land Co. | King City | 6 |
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| Santa Ana Valley Irrig. Co. | Santa Ana | 6 |
| Chino Land & Water Co. | Chino | 5 |
| Union Sugar Co. | Guadalupe | 5 |
| Paul E. Walker | Hemet | 5 |
| C. W. Gates | Los Angeles | 5 |
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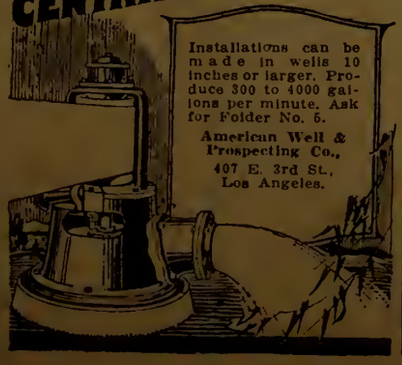
# JOHNSTON TURBINE CENTRIFUGAL PUMPS



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Hubert A. Booksin, District Mgr.
518 Bank of San Jose Bldg.,
SAN JOSE, CAL.

## Farmers' Market Place

(Continued from Page 39)

### MISCELLANEOUS

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All in excellent condition.
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FREE GIRLS, BOYS AND EVERYONE! Here is your opportunity to secure what you have been longing for. This genuine SWISS Wrist Watch is Stem Wind & Set, has Gun Metal Case with Leather Strap. Given for distributing 30 12x16-in. Scenes, Fruits, Flowers and Religious Pictures at 15c each. Easy to sell. ORDER PROMPTLY. SEND NO MONEY. We trust you and send everything POSTPAID.

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FREE LARGE GENUINE EASTMAN
Premo Film Pack Camera, for selling 24 large colored pictures or 24 pkgs. postcards at 15c each. Order choices today. Sent prepaid.
CATES MFG. CO., DEPT. 544 CHICAGO


# BOYS AND GIRLS
## Their Work and Play

*Dear Boys and Girls:*

*We have received many interesting letters about "How to make and do things." Thrift stamps are being sent to the writers of those published below. Why don't you try for a prize? Four bright new thrift stamps to add to your card will be sent for any well-written letter, telling about some plan for making toys or useful articles, or about a new game or anything to occupy head and hand that you think would interest other little readers. Write your letter today. Address Editor, Orchard and Farm, 1111 South Broadway, Los Angeles, and be sure to give full name and address.*

### An Exciting "Coaster"

AN old wire cable and a pulley such as used with a hay derrick are all that one needs to make a coaster that will provide any amount of amusement and excitement. I made one by fastening one end of the cable securely to a post on top of the woodshed. The other end was fastened to one of the clothes-line posts after the pulley had been strung on the wire.

From the pulley I hung a short piece of broomstick by means of a heavy wire, the stick being notched at the center so the wire could not slip off. Then I piled three or four sacks of straw at the bottom of the trolley as a landing place, because it makes fast speed and none of us wanted to get hurt.

Before we took our first ride my father inspected the cable and helped us fasten it more securely at both ends by driving some big spikes, and testing it for us. When he had made sure it was perfectly safe I climbed up on the shed and, hanging onto the broomstick, had a swift slide down the trolley wire, landing safely against the sacks of straw. Our starting place is not high enough so we would be hurt by a fall, but the cable is stretched down a hill and is about thirty feet long, with quite a steep slant, so that we slide very quickly from the top to the bottom.—John Brannon, Nevada.

### A Toy "Telegraph"

TAKE eighty feet of string and double it, slipping it through holes punched on each side of a match box. Next slip the ends of the string through rings fastened to sticks or poles, placed far enough apart to draw the string tight.

You are now ready to send your telegram. Place it in the box and if you wish it to go to the person on the opposite end of the string, pull the string not having the box on it; if you wish it to come to you, pull the string to which the box is fastened.—Aileen Aiken, Whittier, Calif.

### My Pet Rats

ABOUT a year ago my father gave me a pair of little white rats and I have received a great deal of pleasure from them, for they can quickly be taught tricks and are very playful. I have been raising little ones and now have eight.

My father said he thought I could sell them and thereby make a little money all of my own. I did not know to whom I could sell them, until the other night in the late issue of ORCHARD and FARM I saw an ad for birds and animals, so I wrote to the company and disposed of six of my white rats.

I think I shall raise and sell more of them, and I am sure other boys and girls would find such an occupation very interesting as well as profitable.—Rolland Roberts, Lynwood, Calif.

### For Rainy Days

WHEN it rains, we "play store." I have collected a lot of little samples for our "stock." We fix up a counter and shelves and have paper money. It is a lot of fun.—Gerald Holmes, Santa Barbara.

### Pig Rides 'Cross-Country From Kansas

*THIS is a story of a much-traveled little pig. She had the pleasure of making friends with hundreds of tourists on her 2800-mile journey to Southern California on the running-board of a car. Dolores Wickie Batcher is her name, and she is one of 10 Hampshire pigs, shown at the Topeka and Hutchinson, Kansas, fairs. Her mother was a championship winner at both of these fairs.*

*She is well trained and knows many tricks, according to her owner, Mrs. Harry W. Batcher.*

*"Dolores" played around the campfires each night and furnished amusement for the tourists, at one town having the time of her life with eleven Airedale puppies," her owner states.*

*"Dolores" was 12 days old when she started on her long journey. She is now six weeks old and every time she hears the sound of an auto horn is ready to ride. She was fed from a bottle on the road, but now has been weaned.*

*She is valued at $500 by her owner, to whom she was presented by an Oklahoma oil man, whose hobby is the breeding of Hampshire hogs.*

## Paper Frames

(Continued from Page 29)

week-old plants. This is an especially satisfactory scheme, both because the results given by the paper frames will be most pleasing and because the glass sashes can be used to start five or six different beds; whereas, without the paper frames they could be used but for one hotbed.

In addition, beds of tomatoes, egg-plants, sweet potatoes, peppers and a variety of other early vegetable plants can be grown by using paper frames exclusively.

**Some Faults**

To be sure, the paper frame has its faults. Made of simple paper, it is apt to break if handled roughly; but, we are reminded, glass is easily broken. However, we have learned that glass costs money, therefore we treat it with consideration; one is apt to be careless with a paper frame because of its low cost. As soon as one becomes careless with a paper frame, damage will result.

Of course, linseed oil has a certain disintegrating effect on the toughest of paper and after a frame has been exposed to the sun and rain for a season it is only with the greatest of care that one can prevent breaking. With reasonable care, however, the life of a paper frame should be at least three months. If the hotbeds are judiciously planned and planted they will not require either glass or paper frames for a period longer than a few weeks. Plants grown in hotbeds are naturally delicate, as they are grown under extraordinary conditions. Before they are ready for market or setting out in the open field they must be hardened by being left continuously, except when a frost impends, in the open air. In fact, the secret of successful hotbed plant growing lies rather in uncovering the hotbeds than in covering them.

## New Farm Names

THE recent publication by ORCHARD and FARM of a list of farm names inspired a number of subscribers to submit suggestions not included in our article. The following were sent by Mrs. C. C. Hamon, Napa, Cal.:

| | |
|---|---|
| Orchard Bend | Terra Bella |
| Sun and Shade | Myrtle Bridge |
| Linnacres, or Lynn Acres | Nugget Glen |
| | Myrtle Dean |
| Happy Thought | Orchard Slope |
| Rock Scrabble | Cozy Nook |
| Escalon | Luck and Work |
| Goodland Farm | Orchard Lea |
| Orchard Lodge | Chula Vista |
| Just Home | Bud and Bloom |
| Peace and Plenty | Flora's Bower |
| Our Place | Willow Bridge |

The names below were submitted by H. I. Graser, Grass Valley, Cal., Nevada County Farm Adviser:

| | |
|---|---|
| Applecroft | Loma Vista |
| Appletaven | Shady Creek |
| Berrycroft | Holstenhaven |
| Buckeye | Jerseyhaven |
| Surprise Valley | Lady Jane |
| Willow Waters | Laurel Glen |
| Cherrycroft | Lime Kiln |
| Cherry Slope | Pennyne Lodge (Pear Orchard) |
| Durochaven | |
| El Oro | |

We are indebted to G. H. Bower Sacramento, Cal., for these additional suggestions:

| | |
|---|---|
| Lindencroft | Azurecleft |
| Ingomar | Beacon Light |
| Fallen Leaf | Intra Pinks |
| Waldemere | Golden Glade |
| Primrose Dell | Heather Glen |
| Flor de Mural | Merryvale |
| Iranistan | Foby Meadows |
| Columbine | Shore Acres |
| Dreamy Dell | Silversheen Heights |

## Save the Eggshells

IF you want clean milk bottles, save all eggshells. Crush the eggshells for use, then put them in hot water with a teaspoonful of soda. Put the mixture in your milk bottle, shaking it up and down, and finally rinse with clear water.—Marie Merkel.

### WHAT SUBSCRIBERS SAY

**Could Not Do Without It**—"Orchard and Farm has solved many of our farm problems and we appreciate the timely help it contains each month. We could not do without it."—Mrs. J. A. C[illegible], Riverside, Cal.

**Thankful for Helpful Articles**—I want to thank you for the helpful articles and the good thoughts contained each month in Orchard and Farm.—[illegible] J. Lutz, Santa Ana, Cal.

**Contains Much of Value**—I get many valuable suggestions from your interesting publications.—R. Seeke, Long Beach, Calif.

# The Parrish Ridger

## FOR THE MAN WHO IRRIGATES

## The "Once Over" Tool

**Once over the ground and you have a perfect water-tight ridge with a solid core. Solves the ridging problem perfectly. Saves time, water, men and money. Works in any soil. Easy and quickly adjusted to any cut.**

***Write for Circular.***

## W. W. Mathewson

*DISTRIBUTOR*

151 E. Margaret St. San Jose, Cal.

**PEARL OIL**
(KEROSENE)
HEAT AND LIGHT

## *Raining Outside, but Inside—*

—the warm steady glow of a good oil heater filled with PEARL OIL. Whatever the day or the time, PEARL OIL is ready to give you cheerful warmth at the touch of a match. No smoke, no odor. Economical and ever-obtainable. Sold in bulk by dealers everywhere Order by name—PEARL OIL

STANDARD OIL COMPANY
(California)

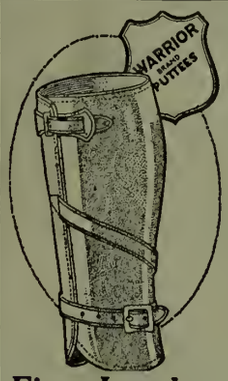
# Army & Navy Dept. Store

530-536 So. Main St., Los Angeles

*The Store with the Reputation for Good Values*

## Thousands of Orchard and Farm Readers Have Bought Merchandise From Us.

—If you haven't bought from us we believe it would pay you to get acquainted with us. We sell only high class merchandise, guarantee every article we sell to please you and we sell at popular prices. If you are tired of paying high prices write for our catalog and do your trading with "THE STORE WITH THE REPUTATION FOR GOOD VALUES." Use coupon below.




### Fine Leather Puttees

**$5.95**

—Puttees for men who want the best; genuine leather of uniform thickness, heavy leather wrapping straps, perfectly molded and accurate fitting. All sizes 14 to 18; STATE CALF MEASURE. Sold only recently at $9; reduced now to $5.95.

### Men's Army Shoes

Price Reduced to - **$5.95**

—A strictly high class shoe; made from fine tan stock, all leather; durable soles, heels and counters; army Munson last, soft cap toe; low, wide heel; comfortable, long wearing, good looking. Every pair guaranteed. Sizes 6 to 11. STATE SIZE. Special, $5.95.

### Work Shoes

Very Special **$2.95**

—We sold this shoe only recently for $2.95. It's a wonder at $2.95. All leather, heavy and long wearing; dark tan; roomy and easy on the feet. All sizes, 6 to 11. Order this shoe on our recommendation—IT'S A VALUE. STATE SIZE.

**BOYS' ARMY SHOES, $3.75**

—Made just like our men's army shoes shown above, except smaller sizes—the same high quality. No better school shoe. Sizes and prices: Sizes 9 to 12½, $3.75; sizes 1, 1½ and 2, $4.25; sizes 2½ to 6, $4.45.

### Boys' Suits

**$7.95**

—Excellent quality heavy part wool boys' suits, dark colors, latest styles, ages 7 to 18, at $8.95.

—Suits with two pairs of pants, $9.95.

—Corduroy Knickers, 7 to 18 years, $3.45.

—Everything for the boy.

### Best Overalls

Are Now "Stronghold" **$1.49**

—"Stronghold" brand best blue denim overalls for only $1.49! They were $3.25 not long ago. Best quality, fast color blue denim, bib style, cut full, button made, all sizes—at $1.49. Jackets to match at $1.75. STATE SIZE.

One-Piece
**Lee Union-Alls**

Price Now - - - **$3**

—Lee Union-Alls—An overall suit in one piece. Best khaki, extra full and roomy, guaranteed not to rip. The best work suit. Sizes 34 to 50 chest. STATE SIZE.

—Corduroy Pants, 30 to 42 waist, $4.45.
—Large Brown Duck Bib Work Apron, $1.10.
—Extra Heavy Khaki Pants, 30 to 42, $2.45.
—"Stronghold" Blue Chambray Work Shirts at $1.
—Good Blue Work Shirts at 79c.
—All Leather Work Gloves at 45c.
—Olive Drab Army Sox, 6 pairs $1.15.
—Corduroy Suits, 34 to 44 chest, $15.95.
—All Wool Auto Robe, $7.50.

Write for Prices on Government Meats. Big Savings!

**Mail Orders Filled for Any Item Advertised**

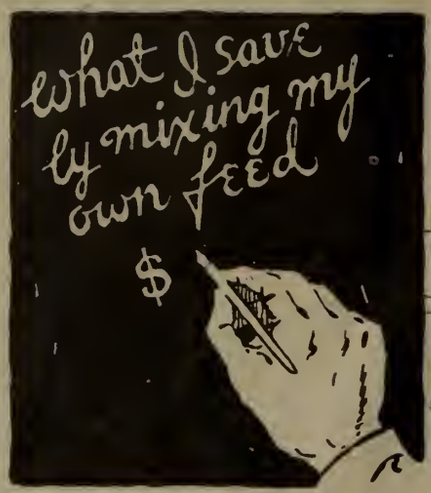
**Address: ARMY & NAVY DEPT. STORE**
Dept. 29,
Los Angeles, Cal.

Write for Catalogue.

**Mail This Coupon for Copy of Catalogue**

Gentlemen:—Please mail me copy of your late catalogue, also others as issued. (29)

Name .....
P. O. ..... State .....
R. F. D. .....



# It may work out with the PEN

# Out

# Does it work out with the HEN

Perhaps you figure it this way: "Why should I buy mixed feed? I want to know what my hens eat. So, why not buy the separate ingredients and mix them myself? In this way I know just what goes into the mash. And I save the mixing charges, too!"

We'll admit—it sounds reasonable enough. But—at the end of the year when you scale up your profit-figures, how does it work out? Have you ever compared the results you get from hand-mixed feeds with the results other poultrymen are getting from a uniform, top-grade feed like SURELAY?

After all, the thing that counts is not how much you *think* you save by mixing your own feed—but what the hens think of the feed you give them and what they do with it. Egg-production is the test that tells! Egg-production is what makes many a feeder ask himself: "Just how cheap *are* cheap feeds?"

Seasoned poultrymen who have fussed with this feeding question will tell you that cheap feeds lessen the profits of every hen in the flock. Moreover, our large scale production enables us to manufacture and *sell* the finished feed lower than the average feeder can *buy* the ingredients—to say nothing of the cost and trouble of mixing. Remember, too, that our daily laboratory tests (an advantage the individual feeder cannot have) insure the uniformity of SURELAY day-in-and-day-out!

If you want to see for yourself why we, as manufacturers and millers, are in a position to mix a uniform quality-feed cheaper and better and quicker than you can—send for the new edition of our booklet, "Makes Hens Happy." You'll find it full of practical hints and profit-pointers! It is yours for the asking—simply fill in the coupon and mail today!

# SURELAY

"A Sperry Product"

SPERRY PRODUCTS IN EVERY HOME SPERRY FLOUR

STOCK AND POULTRY FEED DEPT. **SPERRY FLOUR CO.** 204 WEBER AVE., STOCKTON, CAL.

*Please send me, without obligation, your booklet, "Makes Hens Happy."*

*Name*_____ *Address*_____

February, 1921 10c the Copy

# ORCHARD and FARM

ESTABLISHED 1888

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*In This Number*

HAS CO-OPERATION REALLY BENEFITED THE RAISIN INDUSTRY?

HOW TO KNOW AND FIGHT THE PEACH THRIPS

WONDERFUL RESULTS SECURED WITH SULPHUR AS A FERTILIZER

WHY APRICOT GROWERS MUST ADOPT DEHYDRATION

More than 100 practical ideas and scores of interesting facts for the orchardist, livestock breeder, gardener, general farmer, poultryman, housewife and farm boy or girl.

In Washington's Time—And Now

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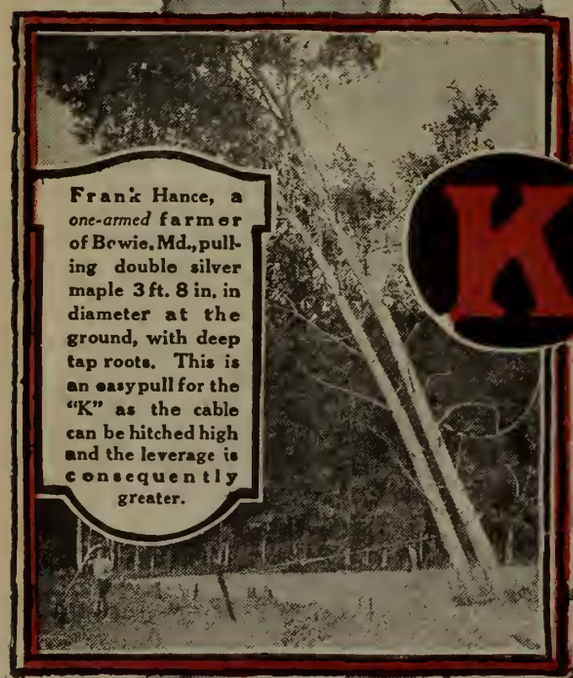
Offices: Los Angeles and San Francisco

# The K Hand Stump Puller

## Gives Your Hand 96,000 Pounds of Power

Big stumps! stumps and trees with deep tap roots! any stump that can be pulled with the best inch steel cable! you *alone* can pull with my "K" Hand Power Stump Puller--*without digging and without the expense of teams and powder.* We guarantee it. We refer you to U.S. Gov. officials. We give highest banking references. If you have stump land, the cheapest way of clearing it is with the



Frank Hance, a *one-armed* farmer of Bowie, Md., pulling double silver maple 3 ft. 8 in. in diameter at the ground, with deep tap roots. This is an easy pull for the "K" as the cable can be hitched high and the leverage is consequently greater.

HAND POWER

# K Stump Puller

### How the "K" Pulls Biggest Stumps

The "K" works on the leverage principle of the ordinary lifting jack, except that the power is applied on a cog-wheel instead of a standard. 100 lbs. push on the lever develops a 48-ton pull on the stump—all an inch steel cable will hold. One man operates it alone—no teams to pay for—no walking.

### A Mechanical Wonder

Made of finest steel—guaranteed against breakage. Weighs only 171 lbs.—easily carried or hauled about on its own truck wheels. Has two speeds—60 feet per feet per minute for hauling in cable or for small stumps—slow speed for heavy pulls. *Works equally well on hillsides and marshes where horses cannot work.*

### Owners Praise It

H. Sinclair of the Dept. of the Interior, a U. S. Gov. official, writes: "The stump puller is a wonder."

Ernest Thompson Seton, author and naturalist, declares the "K" "a great success."

Hundreds of owners write in, telling of pulling six- and seven-foot stumps, of pulling faster and pulling bigger stumps than by any other machine.

**Special Offer** We are making a special offer to get a "K" Stump Puller introduced in every neighborhood. Write us today for full information and for free book on Land Clearing and about our Wonderful Drag Saw.

**The Fitzpatrick Products Corp.**
Box 25
99 John St., New York
16th and Kansas Sts., San Francisco

H. G. Hunzicker of Foster, Wash. pulling a 24-inch fir stump with deep tap roots out of hard ground without using powder or cutting any roots.

**Tear Out and Mail Today**

The Fitzpatrick Products Corp.
Box 25 99 John St., New York
Box 25 16th and Kansas Sts., San Francisco
Send me full particulars on your special offer and your free booklet on Land Clearing.

Name _____

Address _____

**OUR EDITORIAL POLICY**

Orchard and Farm is a magazine of, by and for agricultural people. We believe that to the tiller of the soil is due the best that life affords. We believe that he is the bulwark of the Nation. We honor him as the basic producer. His problems are our problems; his triumphs, our triumphs; his joys and sorrows, ours. To record his achievements and expose the duplicity of his enemies; to fight for and with him; to give him genuine help and practical information; to assist, entertain and inspire every member of his happy household—that is the policy of Orchard and Farm.


# ORCHARD and FARM

ESTABLISHED 1888

Published Monthly by Country Life Publishing Company

1111 South Broadway, Los Angeles, California

"THE SILENT PARTNER OF THE SUCCESSFUL FARMER"

Entered as second class matter at the Post Office of Los Angeles, California, under act of Congress of March 3rd, 1879.


**VALENTINE MOON**

"Won't you be my Valentine?"
Shyly chants the boy of nine.
With the February moon,
Nature sings her ancient tune—
Even to the cooing dove,
Worshiping the God of Love.

When the sap moves in the tree,
Hearts are stirred from lethargy.
Touch of hand or fleeting glance,
Calls to life a sweet romance.
Like a draft of sparkling wine,
The kiss of sly St. Valentine.

## Pithy Paragraphs

February is a fine time to send for seed and nursery catalogs; clean up the shop and sharpen all the tools; avoid overeating and wet feet; watch for croup in the poultry flock; join the farm bureau (if you haven't done so); remember the family birthdays that come this month; make sure the skid chains are repaired and in the car, watch for gophers as the sap begins to flow and tender shoots appear on the trees.

Business is never "looking up" for the fellow who's always looking down.

Make the spraying job thorough. Insects and fungi cannot be scared to death! Sucking insects and fungi must actually be hit by the spray. Chewing insects will not succumb unless portions of vegetation upon which they are feeding receive a coating of the poison. Slipshod methods of spraying mean waste of time, energy and money.—G. P. W.

The man who is on the square isn't always found in "the best circles."

George Washington was born February 22, 1732. His spirit still is with us. His wonderful character has stood the test of time as an example of true Americanism. Could he walk among us today, how astounded he would be in the maze of modern inventions! His generation had little inkling of what science would accomplish within a space of less than 200 years. Yet we may well study the story of this real American and, in spite of our achievements, bow humbly in recognition of his greatness.

Jas. C. Knollin

—Editor.

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## Alphabetically-Arranged List of Advertisements

"ALABAM' shorely am de hottes' place in de world," asserted a darkey in the course of a warm argument with another member of his race. "Why, one summah, when I was a-workin' in Alabam', I seen a dog chasin' a rabbit, an' it was SO hot dey was both walkin!" One good way to keep cool is to not waste time looking here and there for articles you need for ranch or home. It is surprising what a great variety of wants may be supplied simply by referring to ORCHARD and FARM'S advertising columns. Make it a point, whenever you need anything, to glance through the alphabetical list appearing on this page in every number of ORCHARD and FARM. Why not start NOW? Take this tip while it's HOT!

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THE "GREEN" HAND

The Boss—"This dog has fleas. Wonder what we can do for him?"

His Nibs (emerging from the hen house)—"Why not give him some of this scratch mixture?"

*Of course, the remedy must fit the ailment. But prevention is the surest cure in almost any case. Post yourself on the most up-to-date farm and orchard practices by reading carefully every issue of ORCHARD and FARM. One article may contain the "medicine" that will cure whatever ails your business. ORCHARD and FARM is best known for its helpfulness.*

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*Weight:* 3420 pounds.

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*Traction Surface:* About 800 squares inches.

*Center to Center of Tracks:* 38 inches.

*Belt Pulley:* Dia. 8 inches; face, 6 inches.

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*"Largest Producers of Tank-Type Tractors in the World"*

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PACIFIC COAST SALES OFFICES

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ORCHARD and FARM

VOL. XXXIII FEBRUARY, 1921 No. 2

# Chaos to Confidence

## What Co-Operation Has Done for the Raisin-Grower

By Al. C. Joy

(Written Especially for Orchard and Farm)

TEN years ago the average owner of a California raisin vineyard looked longingly to the time when he might have enough money to pull up his grape vines and plant his land to a more profitable crop. Today the average grower of other crops in the heart of the San Joaquin Valley is planting every acre he can spare to raisin grapes and regretting that he did not originally plant all of his acres to the Gordo Blanco or the Thompson vine.

Ten years ago, with an average yearly production of 70,000 tons, California raisins were a drug on the market, rarely returning to the grower even the smallest margin of profit and usually less than the actual cost of production.

Today, with a crop of 170,000 tons completely sold on futures before the packing season is half over, the demand for raisins is far in excess of the supply, and the grower is enjoying that opulence which economically must come in such a situation. Out of their 1920 raisin crop the 12,000 California growers will receive $60,000,000. As a lump sum it sounds tremendous. Distributed among the growers, however, it means an average of $5000 for each of them. And with the growers' operating expenses deducted it means, speaking still, of course, in averages, a little better than ordinarily good wages of today. But to its community it means much money in circulation, much business activity, much prosperity and as a natural corollary much progress.

### Co-Operation at Its Best

Ninety per cent of the raisins produced in the United States are grown within a radius of 50 miles of Fresno, which in this same 10 years of development of the raisin industry has doubled in population and become, through its enterprise and sense of civic ideals, one of California's finest and most promising communities. Seventy per cent of the 200,000 acres devoted to raisin grapes is within the borders of Fresno County. Seventy per cent of the remainder lies in Kings, Tulare and Madera Counties. The rest of the acreage is in Kern, Merced, Stanislaus, Yuba and Yolo Counties. This territorial compactness of the industry has fostered among those engaged in raisin growing an understanding of mutual interest and, based upon that understanding, has developed a co-operative organization responsible entirely for the success of the raisin business from the [illegible] conditions of a decade ago.

Centralized marketing by the San Joaquin Valley vineyardists began as an idea; today it is an ideal. These farmers are co-operative farmers not only in actuality but in principle. The allurement of immediate advantage which sometimes presents itself to the individual is no longer a temptation. The problems of one are the problems of all; the welfare of all is the welfare of one. It may be that there are in this great country of ours scores of co-operative organizations of farmers just as successful as the California Associated Raisin Company; perhaps they are more successful, but it is doubtful if there is one that has done more in the development of a single industry, in the promotion of the interests of its members or in the inspiring of loyalty to its principles.

The California Associated Raisin Company was organized eight years ago. It grew out of intolerable conditions which made the owner of a raisin vineyard an unpaid drudge in his fields and a slave to the inevitable, ever-threatening mortgage. It was the last stand of desperation, entered into by the great majority of the growers, not with much faith in what it could accomplish, but because it could not make conditions worse than they were. It offered a chance; a slender chance, to be sure, yet one that there was little hesitation in taking.

Previous attempts at co-operation had failed. The nearest approach to success was accomplished by the California Raisin Growers' Association, which operated about 20 years ago. It had a stormy career of four seasons. Fundamentally, it was splendidly conceived. In its operations it actually brought to the growers better returns than they would have received during the same period without organization. It lacked, however, strongly-centralized control and in consequence could not properly finance itself. The growers had not as yet been convinced of the value of co-operation, were not sure that it did not mean personal sacrifice for the benefit of one's neighbor.

*"Could See No Hope."*

### "Independence" Impossible

The boast of the farmer has always been his "independence." The raisin grower of 20 years ago was not yet ready to accept new conditions. He did not see the changing spirit of the times, did not recognize that organization of classes was going on all about him, and that organization by the farmers for protection was an eventuality written in the stars.

The old association went to pieces and the growers entered upon a long period of individual dealing with the private packing companies. It was also a long period of poverty, privation, ceaseless worry and hard toil that netted no reward. Money was made out of raisins during that period, but it was made by the packers and middlemen, while the grower practically starved. The industry was shackled with the millstone of overproduction and suffered from speculative exploitation.

It was the custom of the packers to take the market as they found it. They had never attempted the development of new markets nor made any concentrated effort to increase consumption. Raisins were in demand at the holiday season, but sales moved slowly during all the rest of the year. The packers were business men. Buying and selling raisins for their own benefit, they naturally resorted to all the tricks of commercialism that might contribute to their individual pocketbooks. Possibly it would have been a more far-sighted policy for them to have considered the interest of the grower as a part of their own interest. Had they done so, bitter antagonism which still exists might never have been created. But the packer was playing his own game, and as he but followed the beaten track of old-fashioned business, he is, perhaps, not to be blamed for the manner in which he played it.

After the holiday trade was supplied in those old days, thousands of tons of unsold raisins remained in the hands of the growers. None of the growers was wealthy. The majority of them needed money, and out of this need the packers derived their greatest profit. At practically their own price they would buy in the excess crop. They would hold it, or the greater portion of it, until almost time for the first raisins of the next season's crop to be harvested, and then they would offer it to the trade. In consequence the new raisins would flood into a glutted market in which there were no buyers, and then the packers simply repeated the procedure and bought the new crop at their own figure.

Growers who kept books during that period can show that the actual cost of producing raisins up to the time of their delivery at the packing houses was about 3¼ cents a pound. It was rare, indeed, that any grower got 3¼ cents or even 3 cents a pound. The bulk of the crop usually sold around 2 cents, and in 1910 many growers were forced to take as low as ¾ of a cent a pound.

It was in this period that those growers who had sufficient money to pay for the labor pulled up their grape vines and planted other crops. Thousands of tons of raisins were used to fatten pigs. It was a black, unhappy, apparently hopeless situation. Fresno was bankrupt. The owner of a vineyard was in the sad predicament of being unable to make a living out of it and being unable to get rid of it. He was an object of pity to the day laborer with a steady job. The owner of 20 acres of vines had to make a day laborer of himself in order to support his family and to save his little plot of ground from foreclosure.

But during all this time there were men who did not despair, men who did not believe the situation was hopeless, men who saw, or thought they saw, that the exploitation of the grower for private interest was responsible for a condition which could be changed by the exploitation of the raisin for the interest of all. These men believed that a market could be found for every raisin produced. They knew that prosperity could come to the raisin grower only when the holdover crop ceased to be a yearly problem. If a market could be found for the holdover crop the raisin grower could hold up his head among the farmers of California.

It was these men who led in the new co-operative movement. They met in a conference with the packers in 1910 and proposed that they should obtain a pool of 90 per cent of the raisins grown in the State and sell them to the packers for a period of five years at 3¼ cents a pound. There would have been no profit at this figure save such as might come through an occasional large crop. The packers refused to consider the proposal. They pointed out that they would be obliged to carry the holdover crop, and that if the market should be unstable the losses would be theirs. The pooling project was abandoned and the growers went through another year of poverty and low prices.

Came then 1912 and with it the knowledge that something had to be done. Much thought had been given to a plan of organization for a new association. The lamp of experience lighted the way and the pitfalls into which previous co-operative efforts had stumbled were carefully avoided.

It is axiomatic that a man cannot lift himself by his own boot straps. Yet the California Associated Raisin Company did practically this very thing. It obtained money from the

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# Puzzling Peach Pest Exposed — How to Know and Fight the Thrips

By George P. Weldon
CONTRIBUTING HORTICULTURAL EDITOR OF ORCHARD AND FARM
Pomologist, Chaffey Junior College of Agriculture

## A Timely Warning to Peach Growers

*IN ORDER to prevent injury during the coming season, peach growers in districts where thrips were abundant last year should prepare to apply during the blooming season, either the liquid Black-leaf "40" or the dust spray, known as "Nicodust." For the latter either a power duster or a hand dust sprayer will be required. Dusting is easier than spraying and probably will cost less. In either method, however, thoroughness is essential. Read Professor Weldon's article carefully and learn how to detect all kinds of thrips injury. In sections where it has not previously occurred growers should watch for this dangerous pest.*

THE thrips needs no introduction to pear growers of Northern California, but to the casual observer who has not made a study of its activities, the name means little. Only recently have Southern California peach growers learned to lay the blame for certain kinds of fruit injury upon this destructive pest.

George P. Weldon

The writer's attention first was directed to the injury of peaches by the thrips in 1914, when specimens of fruit from an orchard in Placer County, were examined. The injury consisted of more or less scabby patches on the surface of the fruit, frequently attended by gumming. At that time the cause of the injury was unknown. About two years later, County Farm Advisor E. O. Amundson, while inspecting some of the orchards near Auburn, discovered that thrips were at work within the bloom and on the young peaches shortly after they had set.

That thrips injury is not confined to California is indicated by an account of observations in Michigan, which shows that the damage done to the fruit resembles that observed in certain section of this State.

While it was first reported from Placer County, California, orchardists in the Pomona section (Orange County) for years have noticed an injury which is now thought to have been due to thrips. At the present time the injury is widespread in the counties of Los Angeles, San Bernardino and Riverside.

### Appearance of Thrips

Anyone can find the little insect known as thrips (singular and plural, "thrips") by shaking a rose or other flower over the palm of the hand. In nearly every case tiny yellow or whitish, elongated insects will be found wriggling upon the palm. A closer examination with a hand lens will reveal certain individuals having wings, while others have none. Like all true insects they possess six pairs of legs and a pair of antennae, or feelers. Thrips without wings are known as larvae; those having wings are adults which enter the flower not only for feeding purposes but also for depositing eggs.

### Life History of Thrips

The life history of the species, supposed to be the common grain thrips, (Euthrips tritici), attacking peaches, is not well known at present. Careful study is being made by the Chaffey Junior College of Agriculture in the hope that definite information on this subject will be made available.

The result of this investigation so far has shown that as soon as the peach blossoms begin to open in the spring, the thrips alight upon the blossoms and crawl within, where they are protected from their enemies and where breeding and feeding may take place undisturbed. The eggs hatch in a few days and the larvae, like the parents, gain their sustenance through feeding on pollen as well as the juices of the flower and the young peach.

It is probable that thrips migrate from some other host plant to the peach at the time of blooming. It seems to be a rather general feeder, and apparently the same species exists on a great variety of flowering plants, including sunflower, alfalfa, mustard and melilotus. As long as the peaches are blooming the pest may be found within the blossoms and also for a short time upon the young peaches after the blossoms have dropped.

### Early Detection Possible

When the fruit is about three-fourths inch in diameter, a few of the little insects may be seen in the fuzz. At this time they are not present in great numbers but many of them may yet be found at the tips of tender growths, where they feed upon young leaves as they are unfolding. During the entire summer season a few may be found on the foliage, but practically none on the fruit. Just how many generations hatch during a season is not known, but evidently there are a number.

*Kelsey plums, showing scabby patches due to thrips.*

*Different types of injury caused by peach thrips.*

### Appearance of Fruit and Blossoms

When the pest is very abundant in an orchard the damage to the blooms may be serious. This damage consists in a drying up of the blossoms attacked, which cause a very heavy reduction in the crop of fruit. Fruit which develops after thrips injury is very apt to be disfigured. Feeding takes place on the young peach not only before the blossom has fallen but also while the husk, or jacket, caused by the drying up of the blossom on the outside of the peach, it attached. It is quite probable that the principal injury takes places underneath the jacket before the growing peach casts it off.

The injury is caused by the irritation of the surface of the little peach by the mouth parts of the thrips, which are adapted to scraping. The fuzz may be removed entirely from the surface of the fruit, causing an abnormal discoloration, which can be detected before the jacket has fallen. After the jacket drops, and the fruit begins to grow, the smooth, rosy cheek is very noticeable and furnishes one of the most certain signs of the presence of the insect in the orchard.

Different forms of injury may be noted as the fruit grows. The type of injury seems to depend somewhat on the variety of fruit. In the case of Phillips Cling and Muir, little knobs as well as scabby depressions, are apt to occur. In the case of Ontario (Southern Tuscan) the most characteristic injury is a pitting or dimpling of the surface of the fruit. The pits may be so abundant that the fruit is rendered practically worthless.

### Different Kinds of Damage

Another form of injury frequently seen consists of more or less irregular, scabby patches or lines representing a portion of the skin. This injury may be rather superficial. These are very commonly found on the Lovell variety of peach. While the injury is little more than skin deep, it renders the fruit unfit for first grade when prepared for canning. As the first grade fruit brings the big returns to the grower, a bad attack of thrips, rendering most of the fruit low grade, is disastrous and may cause heavy financial loss.

In addition to being a peach pest, thrips is found abundantly on nectarines, which in an infested district are nearly always scabby and distorted from its attack. It also occurs on apricots and in a few cases considerable injury to this fruit was noticed last season. Apparently the Tilton variety was more subject to attack than the common Royal. Plums in some cases were found to be injured quite severely. The accompanying illustration showing injury to plums of the Kelsey variety will give a good idea of the effect upon this fruit. Apples and pears, as well, are subject to attack, indicating the general feeding habit of the insect.

### Methods of Control

Last season the writer conducted a number of experiments in an attempt effectively to control this pest. Great difficulty was experienced on account of the uneven blooming of peaches and other fruits. The blooming period lasted from two to three months, which may not occur again for years. As fast as blossoms came on the trees the thrips attacked them, and at no time during the blooming period could an application be made that would kill a large percentage of their number. It was found, however, that a thorough application of Blackleaf "40," 1 to 1000, combined with a 3% distillate emulsion, would kill a fairly high percentage of thrips in the blossoms at the time of spraying. Effective results demand great care in the application of the spray, as the insects are well protected in the blossom by the stamen bars and the fleshy pistil. Whale-oil or fish-oil soap, about 5 pounds to 100 gallons of spray, may be substituted for the distillate emulsion.

Dust as well as liquid applications were tried and proved to be equally effective. "Nicodust" of 5% strength was used in this work. During a season when blooming is normal, it is probable that at least three applications will be necessary for commercial control. The difficulties encountered in eradicating this pest are much greater than were anticipated when the work began, and further experiments will be necessary before definite conclusions can be drawn.

### Is "Clean Cultivation" Best?

When the work with this pest began in Southern California the growers were urged to plow their orchards early, thus turning under any vegetation which might harbor the insect. It was reasoned that this would have a tendency to lessen the severity of

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# PRACTICAL POINTERS
## IN FEW WORDS FOR BUSY FARMERS

**Electricity From Wind**—A Florida farmer has installed a windmill to which is coupled a dynamo. With a belt which multiplies the wheel speed 48 times, he is said to have lighted and heated his house and run his electric automobile for over a year. The latest improvement on this device involves the aero-hydro-electric principle. The wind pumps water to the required height, the water in turn being transformed by means of the fall into electric energy. Large units are said to be under course of construction in the East. Perhaps old King Coal and even Queen Gasoline are to be dethroned by that ancient servant of man, old Boreas.

**Make Shipments Now**—Farmers or farm organizations who are in a position to move carload lots of any commodity to or from market are urged by Freight Traffic Manager Luce of the Southern Pacific Company to do so now. "For the first time since pre-war days," said Mr. Luce, "the carriers now are ahead of the nation's business, a condition attributed to three factors: First, successful efforts to rehabilitate railroad equipment; second, the usual winter lull; third, present changing industrial conditions." It is pointed out that the present surplus of equipment will not be available when spring shipments begin to move. That real service actually is available will be a pleasant surprise to shippers. Those who can will do well to act upon Mr. Luce's suggestion.

**Citrus Fumigation**—While daylight fumigation has had many advocates, it is admitted to be attended with risk, particularly if conditions are not just right. Recent experiments have shown that fumigation is dangerous when the temperature is above 80 degrees F. Heretofore it has not generally been known that light before and after fumigation is injurious. Diffused light or darkness both before and after treatment is desirable. Trees in wet soil are more likely to be injured than those in dry soil. Therefore irrigation should follow rather than precede fumigation, according to the experimenters.

**Rich or Thin Cream?**—For the following reasons a dairy expert asserts that rich, thick cream is always preferred by buyers: (1) It does not sour as quickly as thin cream; (2) rich cream occupies less space, therefore it is likely to be more thoroughly cooled and to receive better care; (3) it can be pasteurized in the creamery with less loss of butter fat in the buttermilk; (4) it permits of the use of a larger amount of good "starter"; (5) more skim milk is retained on the farm for feeding purposes; (6) rich cream is more profitable to the creamery patrons as well as to the creamery. Thin skimming is condemned by dairy authorities and separator manufacturers.

**Must Pigs Root?**—"Root hog or die" was more than a saying when less attention was paid to breeding and feeding. But recent experiments have proved that excessive rooting of a pasture is due to improper feeding of the hogs. One lot of hogs was given blue-grass pasture and corn. A similar lot received, in addition, tankage. The first lot not only made a smaller gain, but were very restless and tore up their pasture from one end to the other. The second lot made almost twice as much gain, ate less per pound of gain, and being quiet and contented, did not root. If your hog-pasture looks like a freshly plowed field, study the feeding question.

**Increased Land Values**—Motor trucks and highway development are the economic factors responsible for as much as 100 per cent increase in land values in certain sections of the country, according to a recent report by investigators.

**Hatching Pointers**—Never wash soiled eggs intended for hatching. Avoid extremely dirty eggs; clean slightly soiled ones with a damp cloth if desired. Washing destroys the "bloom" and invites decay. It is not best to use for hatching any egg over two weeks old. In preparing a nest for the sitting hen, put three to four inches of damp earth or a piece of grass sod in the bottom of the nest to provide moisture. Dust the hen twice with insect powder so that there will be no lice present when the chicks are hatched. To make sure a hen will stay on the nest, test her with one or two china nesteggs. If, at the end of the second day, the hen returns to the nest in a short time after being allowed to leave for food, the eggs to be incubated may be substituted for the nest eggs.

**Fighting Jack Frost**—Every fruit grower should have a copy of the new United States Weather Bureau publication on "Frost Prevention." It is a revelation to the experienced orchardist who has been doing some things, perhaps, without exactly knowing why. It is chock full of vital, interesting information. Write Division of Publications, U. S. D. A., Washington, D. C., for free Farmers' Bulletin No. 1096.

**Mariout Barley Results**—A complete canvass, including every grower of Mariout barley in 1920, shows the new cereal to have outyielded common barley in all parts of the State. An average increase of 4.3 sacks per acre over common barley was noted. Thus one improved cereal has increased the value of the State's crops by nearly a half million dollars. This amount will increase as the acreage is extended. Plant breeding is a great science, the effects of which are just beginning to be felt. Pedigreed seeds soon will be as common as pedigreed livestock. The scrub plant will pass out with the scrub sire.—Albert J. Mason.

**Tip for Co-Operative Shippers**—In livestock districts many farmers are pooling their shipments to market. It is urged that such shipments be graded. This facilitates selling, weighing and loading at the market. An indiscriminate shipment of many ages, types and conditions involves delay and frequently also loss to the shipper.

**Better Walnut Stock**—The California Walnut Growers' Association has for distribution at cost to orchardists a limited quantity of selected black walnut seed, secured in the Santa Clara Valley. Experiments have shown that the finest walnut trees in the world are developed by budding the improved varieties of walnuts onto wild or black walnut root stock. The price of the seed is 12 cents a pound. Full instructions for planting and growing are supplied with each shipment. The address of the association is 1326 East Seventh Street, Los Angeles.

**Olive Industry Threatened**—Everyone interested in the welfare of California agriculture is urged to impress upon Congress the necessity of tariff protection for the olive industry. That the industry is threatened with extinction through foreign competition is frankly admitted by officers of the California Olive Association. A remedy must be applied quickly. Have you done your share? Wire or write your Representative.

## Just Between Ourselves

*DON'T forget the Helpful Suggestions Contest. Many fortunate subscribers are going to win big cash prizes when the contest closes next June. Simply jot down any short-cut or practical pointer that experience has shown you might be valuable to other subscribers. Every one published will be paid for. You can't lose in any event, and you may win a valuable prize.*

*The next issue promises to be one of the most helpful and interesting we have ever published. Among other big features will be another alfalfa article by Professor Madson. Willard G. Cram will discuss the important legal subject, "Negotiable Instruments," and will show the danger of "Signing on the dotted line" without investigating carefully.*

*There will be another of those valuable contributions from George Gautier, who knows all about hotbeds and plant propagation, and tells it in a practical, interesting way.*

*For the kiddies there will be a big surprise—something entirely new—a fascinating game in which all may take part and strive for prizes. Boys and girls, watch for this in the March issue.*

*Isabel Sinclair promises an unusually good woman's department, with an article by Mrs. De Graf on "Value of Vegetables in the Diet; Salads and Salad Dressings."*

*Professor Arthur Christie will write another timely and illuminating treatise on dehydration, which is considered by many the most important development of recent years in the fruit industry.*

*Of course, Ben Gonnadoit will present some of his lame excuses in his usual funny way, and there will be other touches of bright humor and true-to-life stories such as our readers have learned to expect in ORCHARD and FARM.*

*"Yours is the most human farm paper of them all," writes one of our subscribers. "It is alive. It seems just like a member of the family."*

*We can promise our readers that it will grow better and better. The above items merely suggest what is in store. Is it time to renew your subscription?*

**Protect Inner Tubes From Rust**—What's this—a joke? Who ever heard of rubber rusting? Of course, it doesn't, but it is often injured by rust. Allowing the rim to become rusty injures the inner tube more than it does the rim itself. Rough particles of rust and scale from the rim sift down into the shoe and act like sandpaper on the tube. For the sake of the tubes, an occasional coat of aluminum paint should be given the rims when the tires are off. This will prevent rust and greatly prolong the life of the tubes.

**Important Dairy Information**—Embodying vital facts and interesting statistics as well as much practical information, the January, 1921, number of the De Laval Monthly, issued by the De Laval Separator Company, 61 Beale street, San Francisco, Cal., will be read with interest by every dairyman.

**Fertilize the Beet Crop**—Proper fertilization of beet land now is considered of primary importance by many growers and authorities. A 15-ton crop of beets takes away 78 pounds of nitrogen, 10½ pounds of phosphorous and 80 pounds of potassium from each acre.

**Income Tax Information in a Nut Shell**

WHO MUST PAY?—Single persons who had net income of $1000 or more for the year 1920; married couples who had net income of $2000 or more.

WHEN?—March 15, 1921, is the final date for filing returns and making first payments.

WHERE?—Collector of Internal Revenue for district in which the person resides.

HOW?—Secure Forms 1040-A and 1040 from collector. Copy of law and regulations also available.

WHAT?—Four per cent normal tax on taxable income up to or in excess of $4000; 8 per cent normal tax on balance of taxable income. Graduated surtax from 1 per cent to 65 per cent on net incomes over $5000.

EXEMPTIONS—The head of a family is allowed an exemption of $2000, with an additional credit of $200 for each dependent under 18 years of age.

Don't fail to file your tax returns!

**San Bernardino Orange Show**—From February 18 to 28 San Bernardino will conduct the Eleventh National Orange Show, which promises to be the greatest and most interesting ever held. The California Citrus Institute will be held during the show. Many prominent speakers are on the program. It is planned to have more citrus fruit on display than ever before.

**Are Milking Machines Successful?**—The testimony of hundreds of dairymen is "yes." Announcement is made that one of the world's record-breaking dairy cows was milked during her testing period with a mechanical milker. Professor Erf of the dairy department of the Ohio State University, after 10 years of experimentation, draws these interesting conclusions about milking machines: (1) The machine does the work as thoroughly as the average hand milker; (2) some cows give more milk when a machine is used; (3) success with a machine requires thorough understanding of its mechanism and interest in his work on the part of the operator.

**Farm Motor Trucks**—Of 831 farmers who made reports on results secured with motor trucks, 91 per cent said their trucks had proved to be a very profitable investment. Each truck displaced an average of 1.2 head of work stock, it was shown, reducing expense for upkeep as compared with horses about $200. The average amount of hired help saved by the truck was $163. Crediting the truck with about $50 per year average returns received for custom hauling, there remained something like $10 or $20 annual net expense which was more than balanced by the saving of time for the owner, the ability to get livestock and crops to market in better condition or in shorter time and other benefits not measurable in money.

**Wood Preserving Preparations**—Experience has shown the ineffectiveness of charring fence posts as a means of preventing decay. Many experiments have been conducted to develop wood-preserving compounds. Claiming that creosote sometimes is unsatisfactory because of its high content of volatile oils, an inventor, Richard Avenarius, has developed a compound known as carbolinium, said to be composed of 90 per cent permanent oils or wood-preserving elements. This is being widely used.

**Marshall Irrigation Plan**—Every Californian should become acquainted with Colonel R. B. Marshall's daring and tremendous project for irrigating all of interior California. Pamphlets and maps are distributed free by the office of the California State Irrigation Association, 1217 "L" St. Sacramento, Cal.

# Growing Alfalfa Successfully—Inoculation and Soil Treatment

[This is the second of a series of articles on alfalfa growing, written especially for ORCHARD and FARM. In the next issue, Professor Madson will discuss "Alfalfa Varieties."—Ed.]

*Is inoculation of alfalfa always worth while? This and other timely questions answered in a helpful manner. King alfalfa has been temporarily dethroned by bonanza crops in some sections of the West, but just now is "coming back" stronger than ever. Consequently there is extraordinary interest in up-to-date, proven methods of alfalfa growing.*

By B. A. Madson

Assistant Professor of Agronomy, University of California

WHAT is the best time to sow alfalfa? Obviously in a State possessing such a variety of climatic conditions as California, the time at which the crop may be sown will vary greatly.

Professor Madson

The larger portion of the crop, however, is spring sown, and there are definite reasons for this preference. In the early spring the soil is well supplied with moisture from the winter rains, and the temperature moderate, and gradually increasing, a condition particularly favorable to the growth of young alfalfa plants. Furthermore, with the moderate temperature conditions, the rate of evaporation of moisture from the soil is slow, so that if properly handled, there is little danger of the soil drying out before the plants become established.

For best results, alfalfa should be sown as early as conditions will permit, or as soon as the danger of severe frosts is passed. In most sections of the State the desirable time is early in March, although in some localities, particularly Southern California, seeding as early as the middle of February may be satisfactory, while in the colder sections later seeding may be necessary.

### Early Seeding Advantages

The advantages of early seeding are the greater assurance of good germination, and the further assurance that the plants will be well-established before the hot, dry weather sets in. Alfalfa seed cannot be planted very deep, and if seeding is delayed until late in the spring, at which time the rate of evaporation is more rapid, the soil is apt to lose its moisture before the young seedlings are well rooted. Many of the young plants, therefore, are likely to wither and dry up.

As a means of saving the crop early irrigation becomes necessary, but is to be avoided if possible, as the application of water while the plants are small may wash out or drown many, or crust the soil so as to stunt the growth of the weak plants. In either case, the stand will be reduced. In fact, it is the general experience that any delay in seeding after the middle of March or the first of April usually is attended by greater difficulty in getting a good stand or a vigorous growth. In the early spring, on the other hand, the rate of evaporation is low, and the soil retains its moisture until the seed is germinated and the plants well established. If the grower makes most of this development while the temperature is moderate and the moisture supply abundant, the roots of the young plants will be well started so that they are much less apt to be injured by the dry condition later in the season.

### About Fall Seeding

Some growers prefer to sow alfalfa in the fall. The advantage of fall seeding is that the plants started in the fall develop a large root-system during the winter, and therefore are in condition to make a better growth and a larger crop the first season. Fall seeding is possible only where ample water is available for irrigation late in the fall. It is attended with somewhat the same difficulties in securing a good stand as late spring sowing.

When sown at this season, the crop should be put in early enough so that the plants will have passed the seedleaf stage before the frosts occur. Occasionally good results are obtained from winter seeding, but this is a practice not to be recommended, as even a light frost just as the plants are coming through the ground will prove fatal. Sowing during hot weather is seldom, if ever, satisfactory.

### Quantity of Seed

The amount of seed to sow per acre will vary, of course, with the condition of the seed bed, as well as with the time of seeding. If the seed bed has been well prepared, and the crop can be put in early, 18 to 20 pounds to an acre ordinarily will give the best results. On a poorly prepared seed bed, on the other hand, or for fall or late spring planting, 25 to 30 pounds or more often will be necessary in order to produce a good stand.

In an earlier article was emphasized the necessity of putting the land in good shape, and preparing a fine seed bed. The soil should be firm and moist, with a smooth, shallow mulch on the surface; the field levees should be broad and well-rounded, and worked as carefully as the checks themselves.

### Broadcast or Drill

Much of the alfalfa sown each season still is broadcast, although in recent years drill seeding has increased in popularity, and is much to be preferred. The use of the drill makes possible more uniform distribution of the seed, and a more uniform depth of planting, and also assures that all of the seed will be placed in contact with moist soil. A much higher field germination and a better stand result.

In using the drill, it should be operated crosswise of the checks and levees, rather than lengthwise. If this is done, the levees will be seeded as evenly as the checks, and a more even growth will be obtained. If the checks are seeded lengthwise, the levees have to be broadcast later by hand. It is not uncommon to see fields sown in this way in which the farmer has either neglected seeding the levees, or failed to get a stand, so that the levees remained bare or produced only weeds. This condition is not only unsightly, but wasteful, materially reducing the yield of the field as a whole.

After the crop has been seeded, if the surface is dry and loose, it usually will be advantageous to go over the field with a corrugated roller or packer, which will pack and firm the soil around the seed and hasten germination. On the other hand, if the soil below the mulch is very wet or soggy, the use of the roller may be detrimental, as it will pack the wet soil too tightly and exclude the air. However, alfalfa should not be sown on land in this condition if it can be avoided. The roller also is very good for breaking or cracking the crust formed by rain, which often occurs while the plants are small or just coming through the ground, but should be used only after the surface of the soil is dry.

*Effect of Sulphur on Alfalfa*

*When a soil really needs sulphur or gypsum the response to their use usually is very noticeable. The illustrations are from a demonstration conducted by the Tehama County Farm Bureau near Red Bluff. Above: No treatment with sulphur. Below: Effect of an application of 100 pounds to the acre. The sulphur increased the yield 1000 pounds an acre.*

### Does Innoculation Pay?

In connection with the seeding of alfalfa, the question frequently arises as to the necessity of inoculating the seed, or treating the soil with gypsum or sulphur or other materials to stimulate growth. Whether or not such treatments are desirable cannot always be answered definitely, as so much depends upon local conditions. With regard to inoculation, we all know that the presence of the nodule-producing organisms is necessary for the best results. But whether their artificial introduction is necessary cannot be stated definitely. On many good California soils nodules appear in abundance on alfalfa without inoculation, the organisms probably transferring from some native legume. On the other hand, on many soils equally as good, no natural inoculation occurs. For this reason, no hard and fast rule can be laid down. In general, however, if the land to be sown, previously has grown a good crop of alfalfa, inoculation will not be necessary, but if the land is to be seeded to alfalfa for the first time usually it is the safer practice to inoculate unless previous experience under the same conditions has shown it to be unnecessary.

### Methods of Inoculation

Inoculating may be done in several ways. Perhaps the oldest method is to secure soil from an old alfalfa field, where the organisms are known to be present, and spread it on the new field at the rate of 200 to 300 pounds per acre. This method is quite efficient, but entails considerable labor and expense.

Unless the field from which the soil is secured is carefully selected there may be danger also of introducing into the new field noxious weeds or serious alfalfa diseases. When this method is used the soil should be applied during cloudy weather or late in the afternoon, and immediately harrowed in, as direct sunlight kills the organisms.

### Soil and Water Method

Another method which has given good results is to secure a quantity of soil from an old alfalfa field and place it in a barrel, with two to three times its volume of water. The mixture is allowed to stand for two or three days, being stirred repeatedly, after which the soil is allowed to settle and the clear solution is dipped or drained off. The seed to be sown is inoculated by being moistened with this solution. It is then dried in the shade, and sown as soon as possible. One hundred pounds of soil usually is sufficient to inoculate 150 to 200 pounds of seed. This method is cheap and easy, and eliminates the possibility of introducing weeds, but may introduce the organisms of disease.

The third method is by the use of pure or commercial cultures. If used according to directions they usually

(Continued on Page 35)

# Community Interest of Husband and Wife

*This is the third of a series of legal articles, written in popular style especially for ORCHARD and FARM. The subject of "Community Property" is of especial interest just now because of the agitation for passage of a new or amended act. Although defeated at the last election, advocates of this reform are reported still to be very active. Meanwhile it is well to be posted upon the present provisions of the law. You may find yourself entitled to a refund on your Federal income tax.*

By Willard G. Cram

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IN MOST States the law holds that such property as the marital partnership may acquire is obtained through the joint efforts of the husband and wife. In many of the Eastern States the interest of one in the property of the other is known as dower and courtesy; in California this is known as community interest.

The exact status of community property in California may be shown by describing what it is NOT. In other words, all property owned by the husband or wife BEFORE marriage or that afterwards acquired by gift, bequest, devise or descent, with the rents, issues and profits thereon, is the SEPARATE property of such husband or wife; while all other property acquired after marriage by either husband or wife, or both, is COMMUNITY property.

The importance of this subject is not generally appreciated; the statement sounds simple enough, but when the question enters into the various transactions of every day life one is liable to be in error as to whether the property is community or separate property. The law of inheritance as to community and separate property was explained in my article in the January issue of ORCHARD and FARM and will not be discussed, save to point out that in general the property known as "community" descends to the husband and that only half of such property descends to the wife.

Are you certain that the property which you hold is held as separate property, as joint tenant, tenant in common or as community property? If you know how the "lower twenty" is held as between you and your wife, do the records show the true status of the title, so that the innocent third party who may buy it or loan upon it can not be deceived?

The answer in each case will depend largely upon the date of the acquisition of the property, the manner in which it was procured and the nature of the fund expended upon its purchase. In general, all property is presumed to belong to the community and this presumption can be repelled only by clear and decisive proof that it was either owned before marriage or subsequently acquired in one of the particular ways provided by the statute.

### Status of Deeds

A deed to husband and wife made since the amendment to Section 164 of the Civil Code of California, March 19, 1889, gives rise to the presumption that the wife takes her interest as separate property, and hence the wife is tenant "in common" with her husband, where he has paid for the land out of his separate funds, or with the community if he has not. This presumption may be overcome when there is a controversy between the husband and the legal representative of the deceased wife. Property acquired prior to that date, where the record does not disclose it as her separate property, is presumptively community property; after that date it is presumptively her separate property.

Before the amendment of 1917 the husband not only had the exclusive custody and control of the community real property but he also had the right to dispose of it other than by will or gift. Since 1917 it has been required that the wife join in a deed, a mortgage or a lease (when the leasehold is for a term longer than a year) in order to pass a good title to community property. The husband still has the management and control of the community property, for reasons of [illegible] policy and social economy, and [illegible] the ground that the husband [illegible] interest in it than the [illegible]

[illegible] the courts in California not [illegible] agreed just what the interest [illegible] in community property [illegible] few decisions [illegible] it was [illegible] to whom [illegible] would be [illegible] death Fed- [illegible] h [illegible] valid [illegible]

during the life of the husband, by the act of 1917. The court in this case orders over $116,000 refunded that was paid by the executors of one Blum, as an estate tax on the half interest in the community property which passed to the surviving widow.

### Income Tax Refund

Under the law in California, the earnings of either husband or wife for personal services, as well as the income from community property, are community property. Under a recent decision by the Attorney General of the United States, those in this State who for the past four years have been paying large income taxes on community incomes doubtless will be permitted to file amended returns and thus to secure substantial rebates.

The husband and wife should be allowed to file separate returns, each accounting for one-half the community income and each claiming one-half the personal exemption. Thus, as far back as 1916, where one spouse has returned individually the entire community income and paid the tax on it, he should be permitted to make an amended return and the other spouse an original return for each of the years, and the saving should be rebated.

The new regulations providing for this action doubtless will be prepared and approved by the Commissioner of Internal Revenue.

As an example, suppose John Smith made a return for the year 1919 showing a net community income of $25,000 on which he paid a tax of $2880. Mary Smith, his wife, made no return for 1919. Under the decision mentioned above the husband should be permitted to make an amended return for that year and the wife an original and separate return, each accounting for one-half the total net income; that is, $12,500, and each taking one-half of the personal exemption; each would pay a tax of $975, and the refund would amount to $930.

> ## Whose Is What and Which Is Whose?
>
> ***"WHAT'S mine belongs to me; what's your's belongs to both of us." The husband who made this assertion to his wife could not have been a resident of California, or at least was not familiar with the laws of this State.***
>
> ***Unfortunately, however, this might be the attitude of many individuals were not the rights of each clearly defined upon the statutes. And even in the best regulated families unfortunate situations may arise which might be avoided through a clearer legal conception.***
>
> ***It is the purpose of this article, therefore, to acquaint both men and women with the essential points of the "community property law," which is of such vital and general importance.***
>
> ***Farmers and farm women particularly are affected by it, since almost every farmer is a property owner. Every ORCHARD and FARM reader therefore should heed Mr. Cram's advice.—Editor.***

### What Is "Joint Interest"?

A joint interest is one owned by two or more persons in equal shares by a title created by a single will or transfer when expressly declared to be a joint tenancy. If a husband and wife take a deed which reads to have and to hold "AS JOINT TENANTS WITH FEE TO THE SURVIVOR" or which reads to have and to hold "DURING THEIR JOINT LIVES AS JOINT TENANTS AND AFTERWARDS TO THE SURVIVOR IN FEE SIMPLE ABSOLUTE," the property so conveyed will, on the death of the one, become the sole property of the other, without any further proceedings.

It must be borne in mind that joint tenancies are not favored in this State and an express declaration in the conveyance is necessary to create other than a tenancy-in-common.

An interest-in-common is one owned by several persons not in joint ownership or partnership. If Brown and his wife each take an undivided one-half interest in White Acre, by different deeds, their interest would be a common interest and not a joint interest. Improvements on a wife's separate property with community funds, made by the husband, become part of her separate property, and neither he nor the marital partnership (the community) has any title to the land or building. Property purchased with community funds becomes community property. Property purchased with either husband's or wife's separate funds is separate property.

If a husband and wife have acquired personal property in one State and then moved to California, the law of the State where they lived when the property was acquired will govern as to whether it will be separate or community property.

Products of land separately owned by either spouse, and cultivated by either or both, are the separate property of the one owning the land.

A promissory note given to a wife by a husband for a valuable consideration, which is traceable to her separate funds, constitutes her separate property.

The earnings and accumulations of the wife, and of her minor children living with her or in her custody, while she is living separate from her husband, are the separate property of the wife.

### Separate Property of Wife

The separate property of the wife is liable for her own debts contracted before or after her marriage, but is not liable for her husband's debts, provided that such property is liable for the payment of debts contracted by the husband or wife for the necessaries of life furnished to them or either of them while they are living together. This would not apply as to the separate of the wife held by her at the time of her marriage or acquired by devise or succession after marriage.

The community property is not liable for the contracts of a wife which are made after marriage, unless secured by a mortgage thereon, executed by the husband and wife.

### Assignment of Property

On a judgment for divorce it is the duty of the judge to assign the community property as follows:

If the decree be rendered on the ground of adultery or extreme cruelty, it shall be assigned to the respective parties as the court may under the circumstances deem just; if on any other grounds, the community property shall be equally divided between the parties. If a homestead has been selected from the community property, it may be assigned to the innocent party either absolutely or for a limited time, or may be divided or sold and the proceeds divided.

Under the law of this State a wife may file an inventory of her separate property and have the same recorded in the county clerk's office of the county where she resides. This will give notice of her title.

If any reader of this article holds land that he intends to be, or, in fact, is, the separate property of the wife, and the records do not clearly show this, such proper conveyances should be prepared and filed as will accomplish this purpose

plish the desired purpose. A great deal of confusion exists on this point, and no doubt many individuals are unaware of the true status of such property.

# 4,200 Eggs From 48 Hens

**Simply write me and I will send you a big triple size box of my famous Buttermilk Compound Tablets by return mail, postpaid. I want you to know that you can double and treble your poultry profits by doubling or trebling your egg yield—perhaps get five to seven times as many eggs as did many of my friends last winter by using these wonderful tablets. Fed in drinking water or feed. Because I want these tablets known in every township in America I say: Try them at my risk. If you like them, tell your friends. If not, you are not out a cent.**

## *Over 10,000 People Wrote Me Last Year*

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I used two boxes of your tablets. Before using them got only 6 eggs a day. Within two weeks was getting 12 to 15 eggs a day. In seven months I got about 350 dozen (4,200) eggs from my 48 hens. I did not have any Roup. I give your tablets the praise

MRS ARTHUR TUCKER, Wilkinson, Ind.

### 75 Eggs Instead of None.

I found the tablets were fine to start hens to laying. Before using the tablets I wasn't getting any eggs. Within 10 days after using tablets increase started. I was finally getting 75 eggs a day and fed the tablets until spring.

MRS. R. H. TULTZ, Scranton, Kans.

### Makes 'Em Lay in Coldest Weather.

Last winter I fed two boxes of your tablets mixed with feed. Before using tablets got only 12 eggs a day—afterward 30 to 36 eggs a day. This was within three weeks. After feeding the tablets six weeks got 50 and 60 eggs a day and in the coldest weather in winter.

MRS. ELMER HOTTMAN, Ridgeway, Wis

### Best Tablets Made.

The Buttermilk Compound Tablets I think are better than the common tablets. I got more eggs within two weeks after using them. I have some other tablets but the "Buttermilk" are the best. I fed three boxes last winter. My flock did not have the Roup Will send for more tablets.

MRS. WALTER ELLIS, Gypsum, Kans.

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**Milk Products Co. R. C. Combs. General Manager 659 Creamery Bldg., Kansas City, Mo.**

As per your offer, send me your big double size box of Combs' Buttermilk Compound Tablets. I understand I am to use these tablets in a 30 days' test at one dollar the trial package, and if not satisfied they are to cost me nothing.

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# Sulphur---A Tonic for Sick Fields

By O. H. Barnhill

Contributing Editor of Orchard and Farm for the Pacific Northwest

INCREASING knowledge of the value of sulphur as a fertilizer promises to work a veritable revolution in the use of chemicals for soil enrichment. Recently an important discovery was made in the Rogue River Valley, Southern Oregon, by Prof. F. C. Reimer, director of the Southern Oregon Experiment Station, near Talent, Ore. On one occasion the professor invited the public to accompany him on a little journey to certain alfalfa fields, where he had been sulphuring the soil, to view the results obtained under actual field conditions.

O. H. Barnhill

There the visitors saw the plots of untreated ground, with thin, weak stalks of alfalfa about twelve inches high, while beside them were the sulphured plots, with a heavy growth of dark, green plants from two to three feet high. The effect of the yellow chemical, it seemed, was magical. The cost of the material was small, the labor of application insignificant and the added increase in yield immense.

### Not a Cure-All

Sulphur, however, is not a remedy for all the ills of the soil. It will cure only certain weaknesses, in some cases and under special conditions. In the Willamette Valley its use is said to be attended with negligible results, which, no doubt, will be true in many other localities. Its value is confined to certain farm crops, and the increase in plant growth is limited. The fact remains, however, that over a very large area, the limits of which are yet undetermined, sulphur is the most economical and effective fertilizer known, being worth more for this purpose than any other known agency.

The questions now arise: "Why is it that the value of sulphur as a fertilizer has remained so long undiscovered? Have not sulphur compounds, such as land plaster, long been used for soil enrichment?"

These questions are readily answered. The fertilizing value of the compounds last named is well known, but it was supposed that their value was due to the other substances which they contained as much as to their sulphur content. It is a fact that on our sour soils land, plaster is chiefly valuable for the lime it contains, but on other soils, sulphur is the active improving agent and the lime is of no value, because not needed—a fact generally unknown.

### Better Analysis Methods

Investigators who examined the chemical constituents of plants concluded that the latter contained very little sulphur and that this substance practically was of no importance in the promotion of plant growth. It remained for Professor Reimer to discover the error of this conclusion, which he did by employing an improved method of plant analysis. Under the methods which other scientists had used, the sulphur in the plant, which was burned, combined with carbon, and nine-tenths of it went up in smoke, thus escaping the watchful eye of the investigator, who found only the remaining one-tenth in the ash residue.

Professor Reimer discovered that many plants contain more sulphur than phosphorus, although the latter is one of the three chemicals used most in soil fertilization. A ton of alfalfa hay, for example, contains seven pounds of sulphur and only five pounds of phosphorus, while a ton of rape contains twenty pounds of sulphur.

The use of pure sulphur at the rate of 100 to 400 pounds per acre was found to increase the yield of alfalfa in the Rogue River Valley 50 to 1000 per cent. Later tests in the fields of Central Oregon, in the Des Chutes Valley, resulted in crop increases of around 100 per cent, the tonnage of hay being almost doubled. Reference is not made to small experimental plots, but to large fields, where sulphur had been used by the ton. Meadows which had never yielded more than two or three tons per acre were brought up to a five-ton yield by the use of sulphur at the rate of 100 pounds per acre, the amount usually applied.

### Results in Utah

In the Salt Lake Valley, Utah, from 100 to 400 pounds per acre of sulphur was used on various crops, which were benefited similarly. Field peas showed an increase of nearly 100 per cent. All legumes, such as alfalfa, clover, peas, beans and vetches, seem peculiarly susceptible to the good effects of soil sulphuring, as this process increases the nitrogen-gathering propensity of these plants.

In addition to furnishing an important constituent of plants, sulphur, when applied to the soil, releases the potash which the latter contains and renders it available for plant food. The extensive use of sulphur, therefore, would lessen our need of importing potash.

The three good effects of sulphur will bear repetition: Supplying plants with one of their chief chemical constituents, increasing the latter's nitrogen gathering tendency and rendering potash available for plant food. It is said also to decrease the loss from various pests.

Many soils are deficient in phosphorous, and therefore 200 pounds of rock phosphate, as a rule, can profitably be applied in connection with sulphur. If the soil needs lime, apply two tons of ground limestone rock per acre. To test the acidity of the soil, stick a strip of blue litmus paper into the moist ground and leave it there a few hours. If the paper turns pink, the soil needs lime.

### Is Gypsum Always Valuable?

Unless the soil is acid, the use of land plaster is very wasteful, this material being more than four-fifths lime. In other words, there is a loss of 1640 pounds of material in every ton of land plaster used on ground

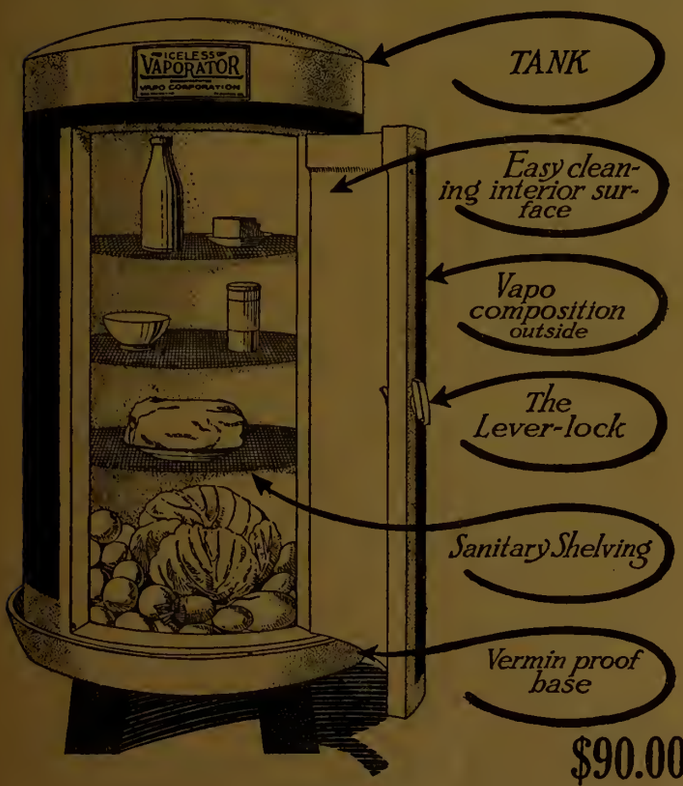
(Continued on Page 21)

## You Are Invited to "Ask Mr. Barnhill"

***ORCHARD and FARM'S Northwestern office is, like all branches of this organization, an institution of service. Our Mr. Barnhill is located at the seat of the great Oregon Agricultural College, where he has access to enormous and valuable funds of information. In addition he is, himself, a farmer and student of agriculture, and his advice has helped many to solve their problems. Address him in care of the Editor of ORCHARD and FARM, 1111 South Broadway, Los Angeles, or at Corvallis, Ore. Give full name and address and enclose stamped self-addressed envelope for reply. Don't hesitate to "Ask Mr. Barnhill."***

# Simplicity

## A simple sanitary cooling plant that carries no expense after the original investment




**$90.00**

*The Iceless Vaporator stands 5 feet high. Diameter, 28 inches.*

*Food Chamber is 43 inches high. Diameter of Food Chamber is 24 inches (so you see what a goodly quantity of food stuffs finds place in the Iceless Vaporator).*

*The dimensions of the door accommodate milk pans of the largest size.*

*The constant circulation of air is achieved by such cautious screening of openings that the Iceless Vaporator is dirt-proof and proof against ants, insects, anything that either creeps, crawls or flies.*

All these wise provisions are set forth in the booklet *"Refrigeration Without Ice"* which we shall hasten to mail to you if you will send us your address.

**TO DEALERS**

There will be one Vaporator dealer in each town. Behind him will be put a forceful advertising campaign. Write for agency.

## WATER COSTS LITTLE

**You fill the tank at the top. Under ordinary circumstances, that will last two or three days. The water permeates the sponge-like outer wall. When filled, it will not absorb more until evaporation takes place.**

Evaporation cools the outer wall, the air space between, the inner wall, and the contents of the food chamber within. No ice is required. No dirt or insects can enter. It lasts forever.

The hard, white surface within is easily cleaned. The galvanized wire shelves are sanitary and permit the circulation of air.

The food is preserved at an even temperature, thus keeping it fresh and sweet. The pressure clasp-lock forces the door tight, to keep out the heat and keep in the cool. The Vapo composition of which the

ICELESS VAPORATOR

is made, is virtually a stone sponge. It is a patented material of long life and forever-serving qualities. Once installed, the Iceless Vaporator becomes a family friend for all time.

Ask your dealer about the Iceless Vaporator, or write us direct.

ICELESS VAPORATOR
TRADE MARK
MANUFACTURED BY
VAPO CORPORATION
SAN FRANCISCO STOCKTON CALIF.

995 Market Street, San Francisco

## Your Private Cow Doctor

If cows could tell their feelings, many a serious illness would be prevented, and constant milk losses would be saved.

Milking cows, particularly, are subject to many ailments that are first manifested only in a reduced milk yield.

Such cow ills you can treat yourself with the aid of Kow-Kare, the great cow medicine. At the first sign of reduced milk flow try Kow-Kare. Use it according to directions and watch the story the milk pail tells.

Dairymen everywhere know the value of Kow-Kare both in preventing disease, and in treating such ailments as Barrenness, Abortion, Retained Afterbirth, Scouring, Lost Appetite, Bunches.

No cow barn should be without Kow-Kare, your private cow doctor. Sold in 70c and $1.40 packages by feed dealers, general stores and druggists.

Write for free book, "The Home Cow Doctor."

DAIRY ASSOCIATION CO.
LYNDONVILLE, VT.

Kow-Kare and Balm Distributors for California
GERMAIN SEED CO., Los Angeles, Calif.



Madewell Surface Pipe

Strongest, smoothest and most practical construction possible. When it comes to surface pipe, there's nothing better.

—Lock Seamed by powerful machinery—a good wide seam that holds.

—Locked-Seamed Sleeves, countersunk on the inside, leaving a perfectly smooth surface. An exclusive Madewell feature.

—Full Gauge Steel guaranteed in all Madewell Pipe.

Send for Catalog S

It explains Madewell Surface Pipe and other Madewell Sheet Metal Products in detail.

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MADEWELL


# Study This Photograph of the World's Best Cow

ONCE more a seemingly unbeatable record has fallen—this time the world's yearly milk record—held so many years by Tilly Alcartra.

This honor goes to Segis Pietertje Prospect, a Washington Holstein cow, owned and developed by the Carnation Stock Farms, Seattle, Wash., in whose hands she has made her marvelous record of 37,380.1 pounds milk and 1,445.9 pounds butter in 365 days, having passed the record of Tilly Alcartra by approximately 4,000 pounds milk and 122 pounds butter.

The new champion is the highest exponent of those three great characteristics that all Holstein breeders are striving for, viz., good, constructive breeding backed by individuality and production.

### Outline of Breeding

"Prospect," as she is commonly known to her friends, was born April 10, 1913, on the farm of George V. Leighton at Boise, Idaho. She was sired by King Segis 10th; her dam was Beauty Pietertje Clothilde, both brought from New York State by the Idaho breeder.

*The sueeessful breeder is the one who fixes in mind an ideal type. This wonderful Holstein possesses the most desirable characteristics of her breed. Fix the image in your mind and you will have less difficulty in making selections for breeding in your own herd.*

"Prospect" freshened December 15, 1919, and in spite of an attack of milk fever, rallied quickly and was started on official test December 19. She completed her test at midnight December 18. Analysis of her record shows an average daily production of 102.42 pounds of milk or 11.64 gallons.

### Show Type Individuality

Segis Pietertje Prospect is a very high-class show cow, as straight as a line, carrying out very well over her rump. She is the longest cow in the herd and one of the longest of the breed.

Her head is feminine with a bright eye, good length, a large muzzle and powerful jaws. Her neck is long, slender and clean, her withers smooth and strong with wonderful length on her shoulder blade.

Her heart is very full and shows remarkable capacity. Her middle is enormous both in length and circumference. Ribs are well spread, hips are very prominent and widely set apart, with great length to the pin bones.

Her udder is of very fine texture, well attached, with good-sized teats, nicely placed, and is covered with a good network of veins. Her belly veins are long and very large, running well up between her front legs. Prospect weighs 1,650 pounds and is in the pink of physical condition. Holstein breeders everywhere are much interested in the achievement of this great cow.

## Live Stock on New Irrigated Farms

INTERESTING and valuable observations are made by Professor T. C. Mead of the Idaho Agricultural Experiment Station, following several years of work among new settlers under irrigation projects.

Many farm developers, Professor Mead points out, make the mistake of acquiring live stock too soon, or in larger numbers than properly can be cared for. Admitting that quick returns frequently are secured from stock, nevertheless, he shows that the settler will need, first, a house, a domestic water supply, a garden, provision for his horses, fences and other equipment.

He can better devote his time to acquiring these things as quickly as possible and preparing the land for irrigation and planting, than to caring for livestock with inadequate equipment, the professor asserts.

### Watch Your Step!

If the farmer has feed, he can, of course, care for a cow and some chickens, but even they will need shelter and special equipment. Influenced by favorable prices or an abundance of natural feed, many a settler has come to grief through too heavy investment in live stock, the care of which has delayed the improvement of the land, Professor Mead asserts.

It is urged that fences, the feed supply, stock watering facilities, shelters, corrals, feed racks and other equipment be provided before live stock is purchased.

"I have come to believe," says Professor Mead, "after observing the methods of many settlers, that not only should the new farmer go slowly in acquiring stock, but also limit his purchases to only one kind at a time. It is a mistake for him to buy a few hogs, a few cows and possibly some sheep, for each different kind requires additional equipment and separate pens, pastures or corrals. The same effort and capital will go further in caring for one kind of stock than for two. Every farmer knows that sheep and cattle should have separate pastures. In fact, sheep cannot with safety be kept in an enclosure where there are horses and mules; hogs, too, annoy and injure sheep."

Many stories of success have to do with livestock raising, and no attempt is made to minimize the value of stock. But too many irons in the fire scatter the heat and destroy efficiency. No doubt ORCHARD and FARM readers who are developing new ranches will be interested in and will profit by Professor Mead's observations.

## Must Grain Be Included in the Dairy Ration?

WITH prices of grain at high levels, the inherently low-producing cow probably will not pay a profit on grain where alfalfa hay is abundant. But will the inherently low-producing cow pay even for good alfalfa hay with labor and overhead as high as they are now? Most dairymen will say "No."

What about the other cow, the one that might be a high producer if properly fed? Will it pay to feed such a cow grain? The best answer is that the most prosperous and most progressive dairymen, even in the Western States, feed grain. Are they really making more net profit than those with good cows who do not feed grain? The cow-testing association records of these grain-fed herds in which the "boarders" have been culled, almost always show more profit at the end of the year, over cost of feed, than for similar herds not fed grain.

Where excellent pasture is available the difference is not so noticeable, but even in these places the most profitable herds are the grain fed herds. Here are some figures secured in a section where alfalfa hay is relatively cheap and grain very high.

| | Profit per cow above cost of feed, per year |
|---|---|
| 4 herds, grain fed | $115.00 |
| 4 herds, fed on hay | 85.00 |
| Difference | $ 30.00 |

If the grain had been purchased more cheaply by co-operative buying, the result would have been even more in favor of the grain-fed herds. This is only part of the story. The effect of grain on developing the young cows is worth while even if in production they no more than paid for the grain.

## Destroying Cattle Lice

THE regular method of washing cattle in summer with the various disinfectants to rid them of lice is not a safe procedure in the winter. During cold weather the animal when washed dries slowly and may contract pneumonia.

The State Department of Agriculture advises the application of linseed oil to the infested areas during cold weather. When this is applied the animals should be placed in the sun for a few hours to prevent irritation to the skin. Since the oil will not destroy louse eggs, a second application should be made in ten or twelve days to kill the lice that hatch from the eggs.

# 5 CENTS a day invested in a DE LAVAL may save you from 25 cents to $1.00 a day

A DE LAVAL Cream Separator is the best paying investment any cow owner can possibly make.

It saves twice a day, 730 times a year, over any other system or inferior separator—in quantity and quality of product, time and labor.

Its cost represents an investment of about 5 cents a day for ten years, including cost of operation and interest on the investment. With simple care it will give good service not only for 10 but for 20 to 30 years; it practically never wears out.

Such an investment may save you from 25 cents to $1.00 or more a day, according to the number of cows, returning from 500% to 2000% profit on the investment. Every day you delay the purchase of a De Laval you waste and lose money.

Today a De Laval Cream Separator, considering its improvements and quality of construction, is one of the cheapest things you can buy. With cheaper feeds and butter-fat at present prices there is more profit today in butter-fat than there was a year ago. Relatively, a De Laval is cheaper than it was a year ago.

**See your nearest De Laval agent now about getting a new De Laval. Even though you have only one good cow, it will pay you to own one.**

**De Laval Dairy Supply Company**

**61 Beale Street** **San Francisco**

# Sooner or later you will use a De Laval Cream Separator or Milker

# Here Are Puzzle Contest Winners

*Suspense at last is ended. Is your name in the list of fortunate winners? Prizes are distributed among successful contestants.*

THE greatest of puzzle contests in the history of Orchard and Farm has ended. The result of three months' struggle is announced over the signatures of the judges. The arduous task of adding, checking and re-checking the puzzle charts ended January 19.

Then, in fairness to all those entered in the contest who could not witness the selection of the prize winners, ORCHARD and FARM appointed a committee of prominent Pacific Coast business men to look after the interests of all the puzzle-workers. These gentlemen then became the arbiters of the fate of contestants. The entire contest was out of the jurisdiction of ORCHARD and FARM and solely in the hands of these judges.

The solutions were arranged in numerical order and checked slowly and carefully under the supervision of the judges, each of whom devoted as much attention to every detail of the audit as he would to his own business affairs each day.

At last the solutions of all contestants were called off and registered again. Finally they were checked back so there could be no possibility of an error. Then the final and official result as published below was announced by the committee, including an official statement of the correctness of the audit, showing that all the requirements and rules as previously announced had been adhered to.

The wonderful puzzle contest was ended; it was all over but the mailing of the checks. Although the prizes offered by ORCHARD and FARM were numerous and valuable, even the long list of winners leaves many ambitious and hard-working contestant without even "honorable mention." But in the nature of such contests this is inevitable. All cannot be winners in any race, and the more liberal the reward the greater becomes the competition.

ORCHARD and FARM regrets that every entrant who made an effort, no matter to what extent, could not receive a prize, but as competition is the life of any venture, this condition necessarily must exist. There must be losers, as well as winners.

The successful ones are entitled to congratulations. They have worked energetically. They have their reward. ORCHARD and FARM congratulates them heartily and sincerely. It was a fair field, with no favors asked or sought. In that spirit the battle was begun and "fought to a finish."

## Here Are the Fortunate Subscribers

| Name— | Address— | Solution | Prize |
|---|---|---|---|
| 1—L. C. Rathcke | 9 Lexington Ave., San Francisco | 24,147 | $600 |
| 2—Harriet Sapp | 1240 W. 89th St., Los Angeles | 24,146 | 375 |
| 3—Arthur Cane | 128 West Blvd., Corona, Cal. | 24,145 | 250 |
| 4—F. P. Cooper | 5305 Cole St., Oakland, Cal. | 24,138 | 185 |
| 5—Victory Montgomery | 1032 Fresno Ave., Berkeley, Cal. | 24,137 | 60 |
| 6—Roy M. Walker | Phoenix, Ariz. | 24,113 | $30 |
| 7—Joe J. Martin | Phoenix, Ariz. | 24,112 | 30 |
| 8—L. E. Miller | Morton, Wash. | 24,091 | 30 |
| 9—P. E. Dufour | Berkeley, Calif. | 24,055 | 30 |
| 10—A. J. Strubhar | Hubbard, Ore. | 24,043 | 15 |
| 11—F. A. Teiche | Garberville, Cal. | 24,020 | 30 |
| 12—Charles Stovall | Chilomath, Ore. | 24,015 | 30 |
| 13—Mrs. E. Shahan | Portland, Ore. | 24,007 | 30 |
| 14—I. R. Forsyth | Spokane, Wash. | 23,998 | 30 |
| 15—N. F. McMahon | San Francisco | 23,969 | 30 |
| 16—J. G. Nisius | Santa Clara, Cal. | 23,941 | 13 |
| 17—Grover Dow | Sellingham, Wash. | 23,938 | 13 |
| 18—M. L. Nicholls | San Jose, Cal. | 23,937 | 13 |
| 19—R. W. Scholes | Berkeley, Cal. | 23,936 | 13 |
| 20—R. D. Klays | Los Angeles, Cal. | 23,918 | 13 |
| 21—A. Tveitmoe | San Francisco | 23,913 | 13 |
| 22—Oscar Hafendorfer | Los Angeles, Cal. | 23,902 | 13 |
| 23—C. J. Wolfe | Glendale, Cal. | 23,900 | 13 |
| 24—Ernest Koch | San Francisco | 23,900 | 13 |
| 25—J. W. Martin | Dakesdale, Wash. | 23,898 | 13 |
| 26—M. H. Phillips | Los Angeles, Cal. | 23,894 | 13 |
| 27—Rose Lydeen | Los Angeles, Cal. | 23,893 | 13 |
| 28—P. A. Robinson | Pittsburg, Cal. | 23,885 | 11 |
| 29—F. A. Jimenez | San Francisco | 23,879 | 13 |
| 30—Francisco DeRoux | San Francisco | 23,879 | 13 |
| 31—John Walda | Camas, Wash. | 23,875 | 6 |
| 32—C. Million | Couer d'Alene, Ida. | 23,871 | 6 |
| 33—P. Ricketts | Vallejo, Cal. | 23,849 | 8 |
| 34—H. E. Chantry | Marysville, Cal. | 23,844 | 6 |
| 35—B. S. Cole | Hanford, Cal. | 23,842 | 6 |
| 36—W. T. Smith | Marysville, Cal. | 23,837 | 6 |
| 37—Mrs. N. Harriman | Dos Palos, Cal. | 23,835 | 8 |
| 38—F. H. Turner | Sattley, Cal. | 23,824 | 6 |
| 39—H. S. Burmeister | Phoenix, Ariz. | 23,816 | 6 |
| 40—E. W. Wolfe | Camas, Wash. | 23,814 | 3 |
| 41—Margaret Wolfe | Camas, Wash. | 23,813 | 3 |
| 42—C. E. Jacobson | San Francisco | 23,800 | 6 |
| 43—G. M. Larsen | Menan, Idaho | 23,797 | 8 |
| 44—G. L. VanPlanck | Pittsburg, Cal. | 23,792 | 3 |
| 45—A. B. Collier | Coquille, Ore. | 23,791 | 6 |
| 46—H. J. Seadal | Los Angeles, Cal. | 23,788 | 6 |
| 47—C. D. Cushman | Los Angeles, Cal. | 23,788 | 6 |
| 48—Mrs. Clausenius | Sanger, Cal. | 23,781 | 6 |
| 49—R. W. Ashton | Hubbard, Ore. | 23,781 | 6 |
| 50—Virginia J Lyons | Manteca, Cal. | 23,750 | 6 |
| TOTAL | | | $2059 |

## Statement of the Committee

*WE, the undersigned, a committee appointed by ORCHARD and FARM to supervise the awarding of the prizes in ORCHARD and FARM'S Puzzle Contest, certify that we have carefully gone over all the solutions, and the 50 winners have been determined in accordance with all the rules previously announced by ORCHARD and FARM as governing said contest. The list of prize winners published in the announcement is correct and official.*

*Signed:*

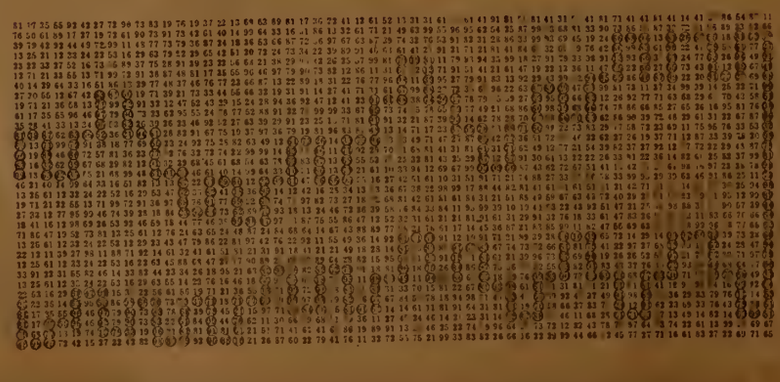
A W Hudson — *Killifer Mfg. Co.*

Robert W Powell — *Puente Oil Co.*

G. E. Williams — *Army & Navy Store.*

Dan B. Miner — *Dan B. Miner Adv. Agency.*

## Facsimile of Winning Chart



## Agriculture and

### Succinct Statements by the

The safest, sanest, surest—in fact, the only route to national prosperity is via agriculture.

*Leaving the interests of the farming classes entirely out of the question,* it will be to the decided advantage of the Nation as a whole to grant preferential consideration to agricultural requirements, even though other industries may be temporarily handicapped thereby.

In our highly complex social system it is difficult to draw a clear delineation between essential and non-essential industries, but one thing is very certain and that is that *agriculture is the hub about which all else revolves.* The farmer is dependent on many phases of the manufacturing industry to supply his needs, but absolutely everyone is dependent upon the farmer.

When the prices that the farmer receives for his products are stabilized at a figure that will permit him to compete with the manufacturer for labor and at the same time leave a fair margin of profit for his own labor and investment, our food problem will be solved.

An equilibrium must be established between farming and industry. The farmer must receive his just deserts.

A manufacturer *could not live for a day* if he permitted the purchaser of his products to fix the price at which he must sell his goods and at the same time allowed the seller of the raw material to fix the price at which he buys. By the very nature of things the farmer *must* buy his supplies and equipment at the seller's price, but if he is to earn the profit to which he is entitled he must certainly have something to say concerning the price at which he *sells.*

It is utterly impossible for the farmer to produce large crops unless he has adequate financial backing and it is only through a large production of the necessities of life that restoration of normal conditions may be attained.

If credit were extended to the necessary commodities and non-essentials were denied credit during the present emergency, funds would be automatically released for the more urgent necessities of agriculture and those industries upon which it is dependent. Labor would also be released from non-essential to essential industry.

There is money in every agricultural community and the normal and natural purpose of that money should be to finance the farmer.

If the rural banker will assume his obligation in the matter of financing the farmer direct, *a saving will be effected in the cost of marketing farm equipment* and this saving will, to a degree, offset the costs of production.

## The New Day

### Amer. Farm Bureau Fed'n.

The farmer should ask for loans with which to finance his crops—*not as a favor but as a right.* The rural bank depends upon the farmers for its very existence. It operates on the money of the farmer. It cannot survive a single week without the farmer balances.

There is but one reason why people leave the farm—*they have reasonable hope of bettering their condition elsewhere.* Anyone who would not diligently pursue such a hope is to be censored for lack of prudence. It is a duty that every man owes to himself and his family.

The sociological progress of agriculture has not kept pace with the sociological progress of industry.

There is but one sure way to get men and women back to the farm, and that is to guarantee to farming a return which will make it sufficiently attractive—*not entirely in the matter of money, but in all those things that make life more worth living.*

Country life must be raised out of the monotony. It is not enough that a farmer should be able to make money. His life should be *personally* satisfactory

The new farm life will provide for better wages; better distribution of work and working hours, educational advantages will be improved, disagreeable tasks will be largely eliminated by up-to-date methods; steps will be taken to furnish recreations and amusements; the social side of rural life will receive more attention than formerly.

There are very few real advantages of the city that cannot be brought to the ruralist, but the basic fundamental advantages of free life in God's open country can never be transplanted into the city except to a very limited degree.

For every advantage of the city there are corresponding advantages of the country. For every disadvantage of the farm there are innumerable drawbacks to urban existence.

In the final analysis, the farmer has the upper hand. Agriculture is the most stable of all industries. Wars may devastate, panics may bankrupt, markets may become stagnant, but the farmer continues to live *more or less as usual.*

In the new era of agriculture, there will be innumerable openings in the line of special occupations and professions requiring a basic knowledge of agriculture and country life such as soil experts, plant doctors, health experts, pruning and spraying experts, forest specialists, farm machinery men, drainage and irrigation engineers, recreation instructors, market experts, etc

# GLIDDEN

## Death to the Pests

That's what spraying with Glidden Dry Powdered Arsenate of Lead means. And the result will be more and better fruit. You can't expect maximum production or a good grade of fruit without spraying.

The profit-eating pests will surely come. So it is very important to choose spraying materials that will destroy the pests most effectively.

Glidden Dry Powdered Arsenate of Lead strikes home quickly and effectively. Its wonderful suspension qualities assure uniformity and thoroughness. Its fineness and fluffiness make it useful for both spraying and dusting.

Your Glidden Dealer carries a full line of Spraying materials, as well as a complete line of Paints and Varnishes.

*Send for the Glidden Spray Calendar. It tells when, how and what to spray. It's Free.*

THE GLIDDEN COMPANY, *National Headquarters*, Cleveland, O.

*Factories:* Cleveland, Chicago, San Francisco, Oakland, Reading, Baltimore, New Orleans, St. Louis, St. Paul, Brooklyn, Toronto.

*Branches:* New York, Chicago, Kansas City, Boston, Scranton, Evansville, Birmingham, Baltimore, Pittsburgh, Portland, Atlanta, Dallas, Houston, Beaumont, El Paso, Olympia, Wash., Des Moines, Memphis, Seattle, Oklahoma City, Montreal, Winnipeg. *Stocks in principal cities.*

*A Complete Paint Line*

Just as Glidden Spraying materials will save your crops, so will Glidden Paints and Varnishes save your buildings and equipment. Here too you'll find a kind for every need from Glidden Endurance Paint to Glidden Jap-a-lac Household Finishes.

GLIDDEN
EVERYWHERE ON EVERYTHING

*Other Glidden Products for the Farm*

Dry Powdered Arsenate of Calcium
Dry Powdered Bordeaux Mixtures
Dry Powdered Bordo-Arsenate
Dry Lime Sulphur
Pure Paris Green
Endurance Paint (Prepared)
Endurance Auto Finishes
Barn Paint (Red and Gray)
Tractor and Implement Paint
Floorette & Wearette Varnishes

JAP-A-LAC
*too*

# INSECTICIDES

# EDITORIAL DEPARTMENT

*Timely Topics among Farm Folk*

## Standardization Needed

NURSERY stock varieties must be clearly designated; growers have suffered heavy losses through misunderstandings as to varieties. Frequently the stock ordered by the grower has proved to be something entirely different from what he anticipated, due to the fact that widely varying types of trees were known by the same name in different localities.

Professor Weldon's article on the Ontario peach, published in the January number of ORCHARD and FARM, pointed the way to a great and needed reform.

The Southern Tuscan, so called, is but one example of the many misnomers which confuse both nurserymen and orchardists; very appropriately this peach has been renamed "Ontario."

It will be to the ultimate advantage of everyone allied with the fruit industry if standard varieties are officially named and clearly recognized in all sections of the State.

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Uncle Wiseacre asserts that after he's been forced to listen to a jazz orchestra in town, nothing soothes his nerves like hearing Aunt Martha play some old-time hymns.

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## Milk Is Essential

A "MILK SURVEY" of the State conducted by the California Dairy Council has disclosed alarming conditions among school children, as well as unquestionable evidence of the necessity of including milk in the diet.

With the knowledge that nearly 60 per cent of our school children are below normal in weight and height, comes the revelation that approximately an equal percentage do not use milk. The survey also brought out the following vitally important facts:

At each age period, without exception, the milk-users are taller and heavier than the non-milk users.

The majority of the irregular and delinquent children are non-milk users.

Comparing the children by grade, it has been found that the non-milk using children are older in each grade than the milk-using children.

In athletic tests the milk-using children are greatly superior.

Determined to show parents and teachers the necessity for including milk in the diet of the growing child, the Dairy Council plans to carry on with increased vigor its laudable campaign, which has the backing of producers and distributors of milk products throughout the State.

---

**Keeps Subscription Up**—"We just had our subscription extended for three years, as we consider ORCHARD and FARM an excellent farm paper."—Mrs. G. A. Enos, Salinas, Calif.

## Killing "The Goose That Laid the Golden Egg"

OF VITAL importance to every California producer—more important even than the question of tariff protection, is the schedule of freight rates to the East. The railroads have plenty of alibis to show why there should have been, in the past ten years, an average increase of 56½ per cent in rates west of the Missouri River and 67½ per cent east of the Missouri.

They readily explain why it has been necessary to boost the shipping cost for citrus fruit 68 1-3 per cent since 1918. Similarly they defend the 50 per cent increase in livestock rates which has taken place in the same period.

Still this does not in any way alter the case from the producer's viewpoint. The ruinous competition of foreign products is bitter enough, but the added burden of enormous shipping costs is the last straw.

Could these new rates immediately be absorbed by the consumers, California would have less cause for complaint. But the result has been simply an enormous increase in production costs, involving, in many cases, untold losses. Citrus fruit shippers find themselves facing a discouraging situation. Imperial Valley winter vegetable growers, seriously in need of the high prices their products should bring, find their returns diminished to an alarming degree by their freight bills.

Are not the railroads "Killing the goose that laid the golden egg"? When rates climb so high that production is diminished, no one is benefited and the country as a whole is injured. Perhaps out-and-out Government ownership really is the only solution of the problem, but in the meantime many farmers are contending that, as usual, they are the "goats." This will not be the case for always!

## Ben Gonnadooit Says

*"IT WAS a rainy morning yestiddy and I didn't get up 'til about 10 o'clock, takin' advantage of th' weather t' rest my lame back which I strained pullin' a calf outa th' mudhole in my barnyard. While lyin' in bed, I looked over a farm paper I borrowed f'm one o' my neighbors last month. I seen an article headed "It Pays to Advertise." I didn't even read th' article becoz I disagree with that writer, and some day when I ain't so busy I'm gonna write the Editor and tell him my experience. I advertised my farm fer sale and inside of a week I had seven suits filed ag'in me by fellers I owed money to. Seems like when they's a prospect of a man gettin' a little cash, a bunch of creditors will be hangin' around him like vultures. When a feller's down and out, everybody conspires t' push him further int' th' mire! What's the use, anyway? Well, we kin only learn by experience, and I've learned it DON'T pay t' advertise!"—Ben Gonnadoit.*

## Here's "One On" the Sausage Makers

NOT only city consumers, but livestock men as well, will hail with delight the announcement recently issued by the California State Department of Agriculture that laboratory methods have been devised whereby it is possible to determine the presence of horse meat or other unusual ingredients in meat products, such as sausage.

No more will mystery surround the strang disappearance of Fido, Dobbin or Tabby. In spite of the precautions of Government inspectors, no doubt a great many unprincipled dealers have emulated the famous "50-50" sausage maker.

"How is your sausage made?" inquired the inspector of this resourceful manufacturer, who had developed a thriving demand for his well-advertised rabbit sausage.

"Well," admitted the dealer, "there is a little horse meat in it."

"What percentage?" demanded the inspector.

"Fifty-fifty," was the reply.

"What do you mean by '50-50'?"

"One horse, one rabbit."

There is nothing new or startling about the eating of horse meat. Horses are butchered daily and the meat sold as such under Government inspection and supervision. But consumers who buy Berkshire sausage or Hereford porterhouse have a right to know that they receive what they pay for.

Moreover, the producer is entitled to a fair return for his genuine product. In some cases, however, deception actually may create a market. Not many years ago a traveler who was awaiting his train at a small Pennsylvania railroad station, inquired of a native the destination of two carloads of veal calves which he saw being loaded.

"Why, those," said the well-informed local citizen, "are going to the boneless chicken factory at Smithville."

When deception, fraud and adulteration are done away with in the manufacture and sale of farm products, much will have been accomplished to throw light upon that dark and uncertain period between production and consumption.

More of these things are going on than most of us realize. A good many of our less conscientious citizens are making their living by their wits instead of their mits. How many of those who handle food products are like the gentle-voiced card sharp, who with ingratiating manner, invites us to "Guess where the joker is now." Ten chances to one he has it up his sleeve!

---

## Horses in Demand

HORSE-BREEDERS again are having their innings. They are taking full advantage of the present business situation to carry on their fight against power-farming interests. With grain and hay in many parts of the country finding no sale, or at least rapidly falling in value, many ranchers find it less burdensome to feed animals than to buy "gas" at 30 cents or more

At least, this is the assertion of Wayne Dinsmore, secretary of the Horse Association of America, who reports that in grain-growing sections of the Middle West, good draft mares are bringing $450 a pair as three-year olds.

Tractor manufacturers, on the other hand, point to the advantages of increased efficiency to meet lowering values. Now we shall leave it to ORCHARD and FARM folks to draw their own conclusions. Our first guess is, however, that most of them like and use both the horse and the tractor. They are working together to the advantage of their owners on thousands of Western ranches.


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CONCISE CONTRIBUTIONS

On practical agricultural subjects are invited. Unavailable manuscript will be promptly returned if postage is inclosed. Preference is given to accounts of actual experiences, telling how, when, where, who and why.

# 50 Eggs a Day

Yes—fifty a day. How? Read the letter below.

"'More Eggs' Tonic is a Godsend," writes Mrs. Myrtle Ice, of Boston, Ky. She adds, "I was only getting 12 eggs a day and now I get 50." Give *your* hens a few cents' worth of "More Eggs", the wonderful egg producer, and you will be amazed and delighted with results.

**3 $1.00 Packages FREE**

If you wish to try this great profit maker, simply write a post card or letter to E. J. Reefer, the poultry expert, and ask for his special $2.00 offer, three $1.00 packages Free. Don't send any money, Mr. Reefer will send you five $1.00 packages of "More Eggs." You pay the postman upon delivery only $2.00, the price of just two packages, the three extra packages being free. The Million Dollar Merchants Bank of Kansas City, Mo., guarantees if you are not absolutely satisfied, your $2.00 will be returned at any time within 30 days—on request. No risk to you. Write today for this special free offer.

## Poultry Raisers Everywhere Tell Wonderful Results of "More Eggs"

**"More Eggs" Paid the Pastor**

I can't express in words how much I have been benefited by "More Eggs." I have paid my debts, clothed the children in new dresses, and that is not all—I paid my pastor his dues. I sold 42½ dozen eggs last week, set 4 dozen, ate some, and had 1½ dozen left.
MRS. LENA McBROOM, Woodbury, Tenn.

**1200 Eggs from 29 Hens**

The "More Eggs" Tonic did wonders for me. I had 29 hens when I got the tonic and was getting five or six eggs a day. April 1st I had over 1200 eggs. I never saw the equal.
EDW. MEKKER, Pontiac, Mich.

**160 Hens—1500 Eggs**

I have fed two boxes of "More Eggs" to my hens and think they have broken the egg record. I have 160 White Leghorns and in exactly 21 days I got 125 dozen eggs.
MRS. H. M. PATTON, Waverly, Mo.

**Banker Endorses "More Eggs"**

Some time ago I got from you "More Eggs" and now it means MORE EGGS. I am now fully convinced of its utility. I have 14 pullets and 14 hens one year old and the first 10 days in December they laid 11 dozen eggs. Yours very truly,
H. F. POHLAND, President, The Citizens' Bank of Aurland, Oregon.

**Doubles Egg Production**

I have been using "More Eggs" Tonic 3 or 4 weeks now. My egg production has been doubled.—J. C. KOENINGER, Paradise, Texas.

## Send No Money!

Don't send any money; just fill in and mail coupon. You will be sent at once five $1.00 packages of "MORE EGGS." Pay the postman upon delivery only $2.00, the three extra packages being *FREE*. Don't wait—take advantage of this free offer TODAY! Reap the BIG profits "MORE EGGS" will make for you. Have plenty of eggs to sell when the price is high. Send TODAY—NOW!

**3 $1.00 Pkgs. Free**

E. J. Reefer, Poultry Expert, Reefer Bldg., Kansas City, Mo.

E. J. REEFER, Poultry Expert,
Reefer Bldg., Kansas City, Mo.
I accept your offer. Send me the five $1.00 packages of Reefer's "More Eggs," for which I will pay $2.00 when he brings me the three extra packages being free. I may return at any time within 30 days if the packages do not prove satisfactory. If you prefer


## SOURCES of INFORMATION
*The Fruit of the Tree of Knowledge*

THE following new Government bulletins now are available and will be sent free upon request. Address Division of Publications, U. S. Dept. of Agriculture, Washington, D. C. Order by number.

| | FARMERS' BULLETIN |
|---|---|
| Cotton Improvement Under Weevil Conditions | 501 |
| Angoumois Grain Moth | 1156 |
| The Brown-Spot of Corn, Suggestions for Control | 1124 |
| Selection and Preparation of Fowls for Exhibition | 1115 |
| Management of Growing Chicks | 1111 |
| Feeding Cottonseed Products to Livestock | 1179 |
| Breeds of Dairy Cattle | 893 |
| Principles of Successful Animal Breeding | 905 |
| Farm Slaughtering and Use of Lamb and Mutton | 1172 |
| Growing and Utilizing Sorghums for Forage | 1158 |
| Care and Improvement of the Farm Woods | 1177 |
| Care of Leather | 1183 |
| Farm Inventories | 1182 |

The following technical or scientific bulletins, applying to special industries or localities, will be sent upon receipt of price listed. Address Superintendent of Documents, U. S. Dept. of Agriculture, Washington, D. C.

| | Department Circular. | |
|---|---|---|
| Markets for American Fruits in China | 146 | 10c |
| The Farm Woman's Problems | 148 | 10c |
| | Bulletin. | |
| Hail Insurance on Crops in United States | 912 | 10c |
| Effect of Winter Rations on Pasture Gains of Yearling Steers | 870 | 10c |
| Unit Requirements for Producing Milk in Western Washington | 919 | 10c |
| The Cost of Producing Cotton | 896 | 15c |
| Fumigation of Citrus Plants With Hydrocyanic Acid; Conditions Influencing Injury | 907 | 15c |
| The Black Fly of Citrus and Other Subtropical Plants | 885 | 20c |

The following publications of the University of California may be obtained free from Director, Agricultural Experiment Station, Berkeley:

| | Circular. |
|---|---|
| The Pear Thrips | 223 |
| Brown Rot of Apricots | 326 |
| Propagation of Vines | 225 |
| Protection of Vineyards from Phylloxera | 226 |

From the University of Arizona College of Agriculture, Tuscon, Arizona, may be obtained two helpful publications:

| | Circular. |
|---|---|
| Hog Cholera in Arizona | 32 |
| Fattening Native Steers for Market | 91 |

A very constructive and enlightening bulletin has been issued by the California State Board of Health, Sacramento, Cal., which deals with the packing of ripe olives in California. The bulletin will be sent free upon request. Special "Botulism Number," September.

We wonder if ORCHARD and FARM readers know about the official motion picture films of the U. S. Department of Agriculture. Nearly 150 agricultural subjects are set forth by means of 500,000 feet of film. Subjects included are animal husbandry, forestry, farm management, chemistry, marketing, entomology, home economics and poultry raising. Any farm organization, school, church or club may secure information about these films from Office of Information, U. S. Dept. of Agriculture, Washington, D. C.

## Wet Weather Hint

A FEW homemade cement gutters will drain away the water from the gutter pipes and help keep a cellar dry.

The cement ditch can be 8 inches wide, 2 inches thick and widened at the receiving end to resemble a shallow platter. It should be sufficiently long to carry the water from the gutter pipe far enough from the house foundation to prevent seepage.

If the work is set flush with the ground it offers no hindrance to passing feet or to the lawn mower.

Sylvester Sorrow "Help! Mother" Here comes one of those big track layers

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PCA poultry feeds are recognized by the largest and most successful poultry breeders of Southern California, as the foundation for their real success.

PCA Laying Mash, Breeders' Mash, Chick Mash, Growing and Chick Feeds are not a "happenstance" or a "by-product."

The manufacture of Poultry, Chick and Animal feeds is our ONE and only business.

Our Officers are all practical, experienced poultrymen, who are in the business today and who were also in the poultry raising business when this organization first began the manufacture of poultry feeds some eight years ago.

The poultry raiser, whether large or small, can place unbounded faith in PCA products, as in no other commercial feed on the market.

PCA poultry products comprise the following leading items: PCA Laying Mash, with and without buttermilk; PCA Breeders' Mash (Its use by such leading poultrymen as George England of Inglewood, F. R. Richardson of San Gabriel, B. R. Holloway of Van Nuys and many others have obtained hatches of better than 75 live chicks for every 100 eggs placed in incubators during the full hatching seasons of 1919 and 1920). Interested parties are asked to write either of the above names for confirmation of these statements.

PCA Breeders' Mash helps to produce strong, sturdy chicks. It gives the large or small poultry raiser a much better start towards success.

PCA Chick Mash with buttermilk—PCA Chick and Growing Chick Feeds. Contain the highest organic mineral content available.

PCA feeds cost no more than RELIABLE feeds should.

We have more than 500 dealers in Southern and Central California.

If your dealer cannot furnish, write to us and we will see that you are supplied.

**Send name and address for sample copy of "Co-Operative Poultryman," edited by M. A. Schofield—FREE—a postal card will do. Address Poultrymen's Co-Operative Ass'n, 1522 Industrial St., Los Angeles, California.**

PCA

## Selection of Hens for Breeding

THE observing poultryman should be quite well acquainted with the characteristics of a hen after she has laid for 12 months, and should know whether her kind is worth reproduction. And when a hen has been used as a breeder and the progress of her offspring studied until the next season, her real worth should be apparent.

The hens should be examined often; it is easy to handle them at night by lantern or electric light. The breast of a breeding hen should be plump and firm, but the abdomen must be soft and pliable. Thickening or hardening of the abdomen shows accumulation of internal fat. This also will be indicated by accumulated fat on the pelvic bones. Early discovery of this tendency is necessary, for once it is established the remedy is difficult.

**Indication of Weakness**

If a hen's abdomen bags down lower than the rear end of the keel (breast bone), it is best to discard her from the breeders, as this indicates a vital weakness of the ovarian or reproductive system. There is little danger of a pullet accumulating excess fat until after her first year, when the danger grows with age. Excessive internal fat retards laying, interferes with fertility and is one of the causes of chicks dying in the shell; it often causes the death of hens in hot weather.

The hens that begin to lay normally when well-developed and continue far into the winter, with practically no interruption by moult or broodiness, are of the greatest value as breeders, provided, however, that this strenuous task and the moult which follows have not depleted their vitality beyond the possibility of a prompt recovery.

Hens chosen for breeders should be leg banded and given special care and feeding during the moulting period. They need the proper kind of nourishing foods, to conserve their vitality, including certain mineral salts, oils and other feather-making materials.

## Poultrymen's Association Scores Use of Cottonseed Cake

COMMENT on a poultry article appearing in the January issue of Orchard and Farm is contained in a letter received from the Poultrymen's Co-Operative Milling Association of Los Angeles.

In the article (which originated in the Petaluma district) the use of cottonseed meal in the mash mixture is recommended, together with other oil meals. Experience of the Poultrymen's Co-Operative Association has shown, according to the communication, that cottonseed oil cake, or meal, is decidedly injurious to laying hens.

M. A. Schofield, president of the poultrymen's organization, calls attention to the fact, however, that cottonseed oil cake should not be confused with other oil cakes. There is a large "family" of them, he shows, and most of them are valuable for feed. In fact, only certain kinds of cottonseed meals are detrimental, particularly those manufactured by the so-called hot process. This method tends to increase the content of poisonous alkaloids, Mr. Schofield asserts.

Not only has the Poultrymen's Co-Operative Association requested that its members do not use cottonseed meal in their feed mixtures, but also it is prepared to demand that no cottonseed meal be used during the storage period. Experience has shown, Mr. Schofield states, that cottonseed meal fed to hens during the time when eggs are placed in storage tends to produce a heavy loss among the eggs stored. The success of the methods of the association is indicated by the reputation of its product, which has been built up in New York City.

Fast fruit express service and sanitary refrigerator cars are used in placing carloads of Southern California table eggs in New York City approximately 17 days from the time they leave Los Angeles. So desirable are the eggs because of care in production, grading, checking and shipping, that they command a premium of 20 to 22 cents a dozen over eggs shipped from Middle Western States to the same market, the association official says.

At this time more than 600,000 hens are kept in the territory covered by the co-operative organization, which operates its own mill and distributes prepared feeds to members. The volume of business done is said to show an increase of 100 per cent for 1920 over any previous year. No cottonseed cake is included in the Poultrymen's Co-Operative Milling Association feeds.

## Care of Hens During the Moult

HOW to avoid unnecessary loss of egg production during the moult is a vital problem with poultry raisers. Many progressive poultrymen make a practice of culling during this period. Some hens lose nearly all their feathers at one time, while others moult gradually. Hens in the same flock exhibit every state of condition.

During the feather growing period the fowls are apt to be feverish, nervous, irritable and restless. The stronger individuals impose upon the weak. It is suggested, therefore, that aside from humanitarian considerations, separation pays.

The hens may be graded as follows: (Grade 1) Hens showing little or no signs of moulting and having red combs. These may be kept in their usual quarters and need not be disturbed. (Grade 2) Hens which have red combs, but which are well started in the moult. They should be culled out at night, as quietly as possible, to avoid disturbing the others. (Grade 3) Hens very ragged with moult and showing pale, wilted combs.

The latter class is apt to display a falling off in appetite and should be coaxed to eat by means of a moist mash, fed several times daily.

Green feed is very essential for moulting hens. Alfalfa, barley, Swiss chard, Chinese cabbage, kale and stock beets are relished.

Warm quarters, free from drafts but well ventilated, with a dark corner in which the birds may huddle at will, are suggested by one breeder. Free range, rest and quiet also are valuable considerations.

All these precautions are merely humanitarian, but they also represent "good business."

## Turkey Pointers From a Subscriber

SUCCESS in turkey raising requires patience, watchful care and "mothering" of the young turkeys. They must be kept warm and dry, the latter requirement being very important.

Young turkeys must have plenty of green feed. After they are three days old start feeding them green stuff cut in small pieces or tender leaf blades with their regular ration of either hard boiled eggs, bread and milk, bread crumbs or cornbread and buttermilk. Never give young turkeys old alfalfa cut up, for a post mortem will reveal fiber in the gizzard as the cause of their early death.

Be sure to provide fresh water daily, as well as shell, charcoal, grit and bone meal. A dish of bone meal should be kept where they can pick at it as they wish, for it will help to make the strong frame necessary for subsequent growth. It is not wise, however, to leave nothing but bone meal before them, as they will fill up on it, indigestion resulting.

A little mash is good for young turkeys; it is necessary that they have something bulky, but green stuff is preferable. Too much mash sours in the crop. A small portion of fine grain should be fed to them after they have had green feed. However, they should never be allowed all the grain they can eat.

Remember to dust for lice; every three or four days is not too often. One louse will worry a baby turkey to death. The same lice powder used for hens is too strong for little turkeys, suffocating them so that after a few days they droop and die. Use pyrethrum powder. —Mrs. Bernadine Bolt, Lankershim, Cal.

"Red Top" Steel Fence Post

Drives Like a Stake Anchors Like a Rock

Effective February 1, 1921, there will be a marked reduction in the price of Red Top Steel Fence Posts, f. o. b. Los Angeles.

We wish to announce that, due to the rapid grwth in the sales of these famous fence supports, it has become necessary to improve facilities for handling this product. Please notice carefully our new address and write today for descriptive matter and price list.

Harry L. Baylies
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In the year of 1893 I was attacked by Muscular and Sub-Acute Rheumatism. I suffered as only those who are thus affected know for over three years. I tried remedy after remedy but such relief as I obtained was only temporary. Finally, I found a treatment that cured me completely and such a pitiful condition has never returned. I have given it to a number who were terribly afflicted, even bedridden, some of them seventy to eighty years old, and the results were the same as in my own case.

I want every sufferer from any form of muscular and sub-acute (swelling at the joints) rheumatism, to try the great value of my Improved "Home Treatment" for its remarkable healing power. Don't send a cent, simply mail your name and address, and I will send it free to try. After you have used it, and it has proven itself to be that long-looked for means of getting rid of such forms of rheumatism, you may send the price of it, One Dollar, but understand I do not want your money unless you are perfectly satisfied to pay for it. Isn't that fair? Why suffer any longer when relief is thus offered you free. Don't delay. Write today.

Mark H. Jackson, No. 8-G Durston Bldg. Syracuse, N. Y.
Mr. Jackson is responsible. Above statement true.

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The Home Maker

# Get a Canadian Farm *from the* CANADIAN PACIFIC

THE Canadian Pacific Railway offers you a great opportunity to own a farm home. Many of these farms have paid for themselves with the first crop. Out of its last big block of reserved farm lands you can buy your farm under a plan of long term easy payments that is remarkable in the history of farm investments. The country is ideal for mixed farming as well as grain growing. Later, the same lands can be bought only from private owners, and naturally the work of cultivation and improvement will make the prices higher. We urge investigation now. Never again on the North American continent will farm lands be offered at prices so low.

## Your Last Big Opportunity

Until this land is disposed of the Canadian Pacific Railway offers you the most wonderful opportunity in the world to own a farm, achieve independence and grow rich in Western Canada. It offers to sell you farm lands in the rich open prairies and fertile park lands of the Lloydminster and Battleford Districts of Central Alberta and Saskatchewan or in Manitoba for an average of about $18.00 an acre.

## Twenty Years to Earn and to Pay

ALL YOU have to pay down is 10 per cent of the purchase price. If land is purchased under settlement conditions, no further payment of principal until end of fourth year, then sixteen annual payments. Interest is 6 per cent. This means that twenty years is given you in which to pay for your farm home and it may pay for itself with one crop.

If you would prosper on a rich Canadian farm, as have thousands of others, this is the time to make your investigation. There is no easier plan of securing a Canadian farm than under the liberal conditions of the Canadian Pacific. In Central Saskatchewan, Seager Wheeler grew the world's prize wheat. At Lloydminster the world's prize oats were grown. Here in this fertile country is the final opportunity for you to acquire a farm that will make you independent.

### No Taxes on Your Improvements

The system of taxation encourages your success. There is a small tax on the land—seldom more than 20 cents an acre for all purposes—but there are no taxes on your live stock, buildings, improvements, implements or personal effects. Good markets, modern schools, roads, churches, amusements, make farm life desirable and attractive.

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You must be satisfied and have every question answered before taking up your home. Investigation is invited and made easy. Upon request we will arrange all details of an investigation trip to suit your time and convenience.

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The Canadian Pacific Railway will furnish you with the latest reliable information on all phases of Canadian agriculture and industry from their Reference Libraries in Chicago, New York and Montreal. No charge or obligation attaches to this service. Business organizations and others are invited to make use of it. Write or call at the Bureau of Canadian Information at 165 E. Ontario St., Chicago 1270 Broadway, New York, or 335 Windsor Station, Montreal, P. Q.

**Special Rates for Homeseekers and Full Information**

Special railway rates for homeseekers make inspection easy. You can also secure, free, illustrated pamphlets, full of facts and government figures about land values, acreage yields, climate, Western Canada's farm achievements of the past and its possibilities of future development, and setting out in detail its plans of selling farms to settlers on easy payment terms. Write today.

M. E. THORNTON, Supt. of Colonization

**CANADIAN PACIFIC RAILWAY**

961 First St. E., Calgary, Canada

**Don't Delay Your Investigation**

This announcement calls attention to the last great block of the Canadian Pacific Reserve farm lands. There is time for thorough, careful investigation. But there is no time for delay in deciding to make that investigation. The forehanded man will act today.

M. E. THORNTON, Supt. of Colonization
CANADIAN PACIFIC RAILWAY
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Honorbilt dress shoes and work shoes—shoes for the whole family—are sold by leading dealers everywhere. Look for the name Honorbilt on the soles.

**F. Mayer Boot & Shoe Co., Milwaukee, Wis.**


# From Hotbed to Field

By George Gautier

[This is the second of a series of articles on plant propagation and truck gardening, written especially for ORCHARD and FARM by an authority of many years' experience.—Ed.]

## II. How and When to Sow Seed

TO HAVE vegetable plants ready for April planting in the open field, the grower need not sow in hotbeds until early February. Ordinarily, plants are ready for the field when they have attained a height of from five to eight inches. A hotbed will produce plants of this size within seven or eight weeks. Thus, if the hotbed is planted early in February, the plants will be ready for the field in April.

No attempt should be made to set plants out before April on account of danger from frosts, unless, of course, special precautions are taken. Even plants set out as late as May will bear watching when low temperatures impend.

Seed may be planted either broadcast in the bed or in flats, and the flats in turn set in the bed. If planted in flats, seed may be planted either in rows (10 or 11 to the flat) or broadcast. If they are planted broadcast in the bed, one may expect about 6000 plants in a bed 3 by 12 feet. If planted broadcast in flats, there will be between 250 and 300 plants to a flat 18 inches square. As they should be transplanted when three or four inches in height, it is best and easiest to sow broadcast both in beds and in flats.

### Germinating the Seed

Whichever way one decides to plant, the seed should be germinated before being covered with earth. Germinating the seed advances the plant from three to seven days.

Place the seed in a very damp cloth bag and place this in a glass jar. Then place the jar with seed in the hotbed drawing the sashes over the bed. A constant temperature ranging between 85 and 90 degrees should be maintained. If, during warm days, the sun is particularly hot and the temperature rises, lift off the sashes until the required temperature is attained. Seed that is being germinated requires constant and close attention. Care must be taken to keep cloth containing the seed damp. It must not be permitted to dry, else the tender sprout of the seed will die. When the sprout is approximately one-twentieth of an inch in length, the seed should be sown. In the case of melons and cucumbers and larger seed, the sprout may reach a quarter of an inch in length, but not more, as it is extremely sensitive and a slight rise in temperature is certain to destroy it.

### Planting Germinated Seeds

Seeds that have been germinated are of necessity wet and will cling together. Do not attempt to dry seed to facilitate planting evenly. If the seed clings together, scatter as much as possible in planting, but remember that all seeds do not germinate or grow; there are weaklings.

Before planting seed, see that the soil in the bed or in the flat is well pulverized. It should also be slightly damp, but free from excess moisture. There is no particular advantage in fertilizing the soil before planting. Scatter seed on the surface of the bed; then rake the soil well, but not deeply.

*Good Equipment*

*is essential for success with hotbeds. This is a good time to look over the frames and sashes.*

This will place the seed beneath approximately one-half inch of earth. When the seed has been planted sprinkle the bed with hose (using fine spray) or sprinkling can until water penetrates the soil to a depth of three inches. Do not throw more water than this on a hotbed, as it will soak the manure underneath and stop fermentation.

After sprinkling the beds, draw sashes over the frames and maintain a temperature of about 90 degrees. There is no need to ventilate the beds until the plants begin to grow. Sashes need not be removed except when irrigation is necessary. Watch beds every day for irrigation. Do not permit the soil to dry or to be in any state other than damp.

Do not use anything but a fine spray to irrigate beds. A sprinkling can is recommended for this work, as it enables one to irrigate with more accuracy than a hose. Finally, do not irrigate in the evening. The forenoon is the most practical time for all irrigation. Irrigation quickly lowers temperature and if it is resorted to in the evening a low temperature is likely to prevail in the bed during the night.

### Planting Sweet Potatoes

As sweet potato plants usually are started in hotbeds, it might be well here to describe the method of planting, especially as it differs somewhat from ordinary seed planting. Prepare the hotbed as if it were intended to plant seed. Then take the tubers (using only those in sound condition) and place them side by side on the soil of

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GERSON, 549 Mission Road, Los Angeles. Boyle 1721.

[illegible] The [illegible] of the bed [illegible] with them. When the potatoes have been placed in position, cover with two or three inches of sandy soil. Then irrigate the bed thoroughly. Maintain a temperature in the bed ranging between 90 and 100 degrees, as sweet potatoes thrive well under high temperatures. Also irrigate the bed freely and frequently both before and after the plants begin to grow. Ventilation scarcely is required, as sweet potato plants do not "damp off" readily. Sweet potato plants grow rapidly and will be ready for the field from four to six weeks after the tubers have been planted.

### What to Sow in Hotbeds

In order to have certain kinds of vegetable plants ready for early spring planting seed must be started in hotbeds. Common among such plants are tomatoes, peppers, chili, eggplant, melons, cucumbers, etc. Many familiar varieties of garden plants, such as lettuce, celery, kale and chard, need not be started in hotbeds. In fact, they should not be, as the warm temperature would produce weak, spindly plants. These plants grow rapidly, are hardy in comparatively low temperatures and can be raised successfully in cold frames. A cold frame is constructed in the same way as a hotbed with the exception that no manure is used. Thus, a cold frame generates no heat within itself. It gathers a certain amount of heat during the day from the sun, which it retains in some degree throughout the night.

### Some Thrive in Open

Then, again, some vegetable plants require neither hotbeds nor cold frames to thrive. The accumulating heat of lengthening spring days is enough for them. Among these may be mentioned turnips, carrots, onions and cabbage. It must be remembered, however, that most varieties of vegetable plants may be made to grow rapidly if properly raised in hotbeds or cold frames, as a hotbed plant is essentially a product grown under ideal climatic and soil conditions.

## Treating Seed Potatoes

THE chemical treatment of seed potatoes begins at least four to six weeks before spring planting. Sort the potatoes, removing all the tubers that give evidence of severe infection with disease. Discard those tubers infected with Rhizoctonia (black spots) as the larger black masses contain fungi which are not always killed by dipping. If Fusarium wilt has been evident, cut a thin slice from the stem end of several hundred tubers to ascertain if there is any great amount of infection in the sap wood. This is easily discernible by means of a discolored, brownish circle of tissue.

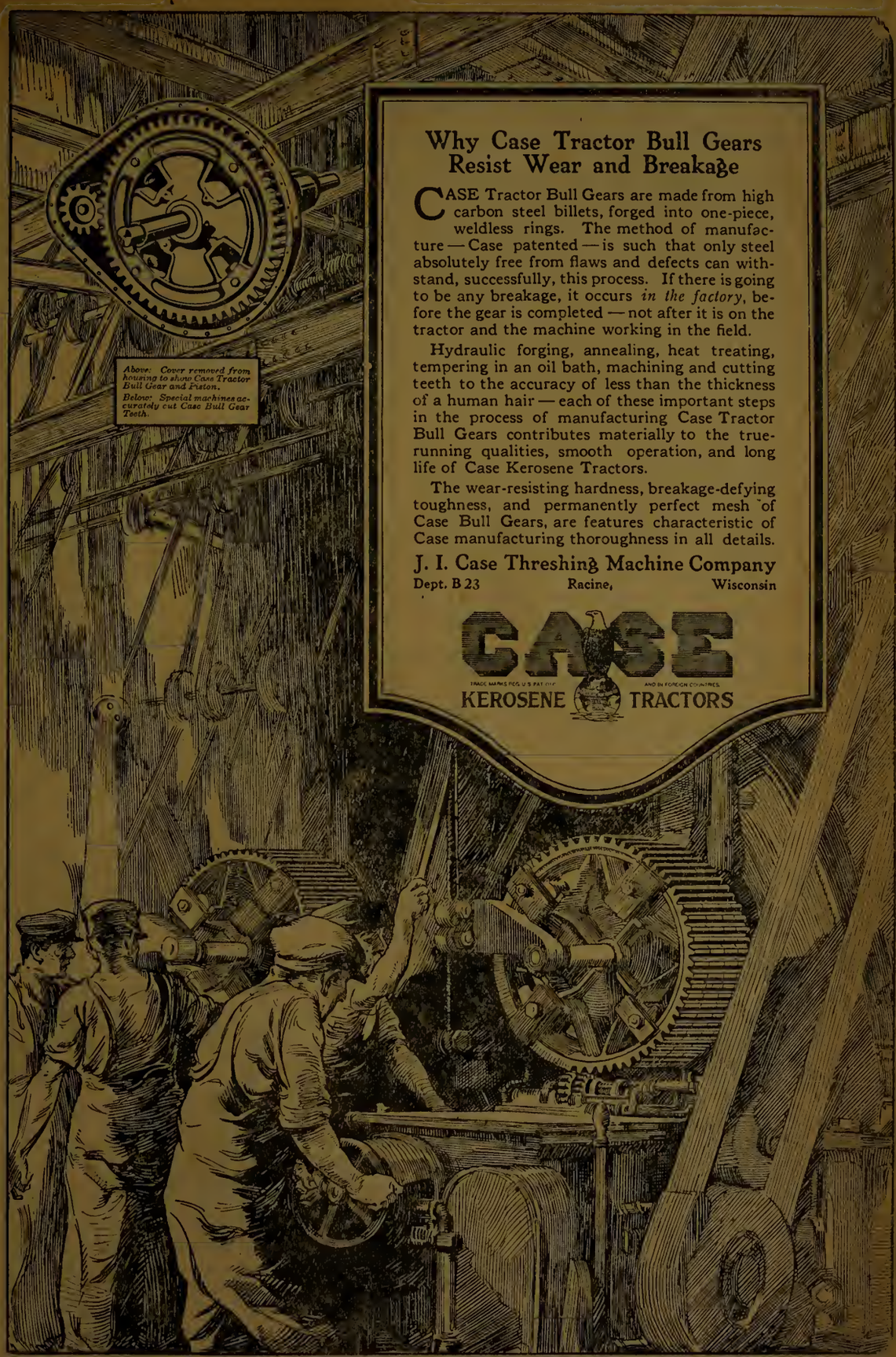
The recommended solution for seed potatoes is 4 ounces of corrosive sublimate (mercuric chloride) to 30 gallons of water, or 1 ounce to 7½ gallons of water. Soak the seed in this solution for one and one-half hours. A wooden barrel or trough is most commonly used as the mercury is corrosive to metals. Keep the treated potatoes and the solution away from farm animals, as the mercuric chloride is deadly poisonous. The solution should be changed frequently, as its strength diminishes rapidly.

This treatment also prevents scab. However, if the land is badly infected, it is advisable not to replant it the following year. Nothing can be added to the ground to prevent scab. Only by rotating with other crops can the soil readily be cleared of this pest. Dipping for scab is of little avail if the ground is badly infected.

Due to a retarding in the development of the buds, it is best to dip about 10 days before the seed is cut. Care should be taken to prevent recontamination of the seed. It is best to store in a clean place and to handle the seed in clean sacks or containers.

Other treatments, less popular, are the formaldehyde and dusting methods. One pint of formaldehyde (40 per cent in water) to 30 gallons of water is the proper strength. Soak the potatoes an hour and a half in this solution. This material is not as satisfactory as corrosive sublimate for the reason that Rhizoctonia is not as easily killed by it.

A common practice among growers is [illegible] dusting freshly cut seed with [illegible] of sulphur, land plaster, or air-[illegible]. There is some merit in [illegible] but it should not be regarded as a preventive for such diseases as scab, Rhizoctonia and wilt.—B. C. Bougher.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# We Must Dehydrate Apricots

*Over 45,000 acres in California produce annually about 165,000 tons of apricots. The 1920 crop was valued at $15,000,000. Only about half the production is required by the canning industry. With foreign demand falling off, and financial conditions unsettled, it is freely predicted that the dried apricot trade is in for a decided slump. Dehydration is indicated.*

By Arthur W. Christie

Instructor in Fruit Products, University of California.

SUN-DRIED apricots have been an important factor in stabilizing the fruit industry of California. But prior to the World War, fully 75 per cent of our dried apricots were exported. With the foreign markets now practically closed, the supply of apricots nevertheless is increasing.

Many blame the American housewife for our limited consumption of dried apricots. True, she may be attracted by the convenience of the more expensive canned product, but does not the fault in reality lie with the growers?

Sun-dried apricots too often become gritty and dirty. The superficial washing at the packing house does not greatly improve their condition. Finally, they are given a heavy sulphuring and are packed in large cartons from which the grocer must "dig out" his retail sales. No wonder the American housewife shuns sun-dried apricots!

### Must Meet Popular Demand

The modern American food product must be produced under ideal sanitary conditions and delivered to the ultimate consumer in sealed containers of convenient size. Why not apply this lesson to dried apricots? We must advertise the fact that the apricots in the carton have been dried clean and kept clean and that if the directions on the package are followed, year 'round economy and satisfaction will result.

While it is entirely possible to improve the drying and packing of sun-dried apricots, dehydration also offers an ideal method of producing high quality dried apricots. Dehydrated apricots are almost a new product, the Canadero Products Company being so far the only concern marketing California dehydrated apricots.

The phenomenal price (50 cents per half pound carton) secured for Canadero Dehydrated Apricots hardly can be expected to continue, but the fact remains that dehydrated apricots have been successfully marketed.

With the general lowering of prices, many of the dehydrators recently erected in California will prove unprofitable if operated only for a limited season on one fruit. As in canneries, "overhead" expenses must be minimized by operation for a longer season on various fruits and vegetables. Apricots afford an early fruit on which the dehydrator as well as the cannery may commence its season.

Canneries will do well to consider dehydration as a possible outlet for small or over-ripe fruit which may not be canned profitably.

### University Experiments

The dehydration of apricots was studied at the University Farm last June, a small fund for the purpose having been allotted from the deciduous fruits appropriation passed by the last Legislature. Most of the experiments were carried on in the improved University Farm evaporator (described in free Bulletin 322, California Agricultural Experiment Station), in which approximately seven tons of Royal apricots were dehydrated. Two smaller commercial evaporators were tested at the same time.

The apricots were cut in half (pits removed) and spread "caps up" on 3x3 foot trays. These trays hold an average of 12 pounds of uncut fruit or almost two pounds to the square foot. Three types of trays were tested, the solid wooden, the wooden slat-bottom and the wire screen tray. The screen tray was found decidedly undesirable because of the corrosive action of the sulphur fumes on the metal screen, contaminating the fruit with traces of a distinct metallic flavor. The wooden slat-bottom tray permitted as rapid drying and was not subject to corrosion. The solid wooden tray permitted almost as rapid drying as the open trays with

*Cutting Apricots*

*Students preparing fruit for dehydration, University Farm, Davis, Calif*

*The Author*

*Professor Christie holding slat-bottom tray of dehydrated apricots.*


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Goods shipped promptly upon receipt of check or money order.

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All above pipe thoroughly overhauled and inspected and ready for immediate use.

We also have large quantity standard pipe and screw casing, pressure tested and guaranteed.

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the compensating advantages of being the sturdiest and least expensive of the three.

### Less Sulphuring Required

Various times of exposure to sulphur fumes were tried, ranging from one to six hours. The one-hour exposure was found to be ample to prevent the darkening of apricots when dehydrated, undoubtedly due to the rapid drying in the absence of sunlight. This indicates an advantage of dehydration over sun drying in that less sulphur and fewer sulphur houses are required; the dehydrated fruit, furthermore, absorbs much less sulphurous acid.

Blanching, or steaming, was tried as a substitute for sulphuring, but proved unsatisfactory. The blanched apricots were of excellent flavor, but so dark as to be unmerchantable.

The truckloads of sulphured apricots, holding about 750 pounds each, were entered at the cooler end of the tunnel evaporator at a temperature of 120 to 130 degrees Fahrenheit, and moved progressively through the tunnel toward the hotter end, where the final drying was completed at 165 to 170 degrees Fahrenheit. The apricots were not injured in any way by these temperatures. About 80 per cent of the warm exhaust air drawn through the tunnel by the multivane fan was recirculated, thereby effecting a considerable saving of fuel. The 20 per cent which was allowed to escape was ample to carry off the evaporated moisture.

The normal drying time was 12 hours, and since the evaporator has a holding capacity of three tons of green apricots, this gave a capacity of six green tons each 24 hours. Within certain limits, drying time is proportional to the amount of heated air drawn through the evaporator. Inadequate horsepower limited the fan capacity during these tests and it is certain that a much shorter drying time than 12 hours would suffice with ample airflow; in fact, one truckload was dried in nine hours. The tests made with the two small commercial evaporators, one a natural-draft stack evaporator and the other a kiln evaporator using steam radiators and small fans, emphasized the superiority of the air-blast tunnel evaporator. A drying time of 24 hours was usual in these smaller evaporators and the cost of operation per ton was more than double that of the tunnel evaporator. The quality of dried fruit was about equal, but the uniformity of drying was much better in the tunnel evaporator.

### Unwarranted Claims

Certain dehydration enthusiasts claim greater yields of dried products from dehydrators than from sun-drying. Some unscrupulous promoters even have asserted that the sugar content of the fruit was increased by the carbon dioxide in the drying atmosphere. Very careful tests were undertaken to settle these questions.

Uniform, weighed lots of apricots were cut, the halves of each apricot being placed on two separate trays. After sulphuring for the same length of time, one set of trays was dried in the sun in the usual way and the other set dehydrated. This test was carried on in both the forced draft and the natural draft evaporators, representing a drying time of 12 hours and 24 hours, respectively. The dried lots were weighed carefully and sampled for analysis.

The analyses, which have been completed and the results of which soon will be published, clearly indicate that, although a greater yield of dehydrated fruit was obtained, it was entirely due to a greater percentage of moisture left in the fruit and not to any increase in sugar content.

### Comparative Costs

The cost of dehydrating apricots need be only slightly greater than for sun-drying. The cost of cutting the fruit and spreading on trays is the same in either case, while the cost of sulphur is about one-fifth as much in dehydration. The fuel cost was $1.36 per green ton, based on 17 gallons of stove oil at eight cents per gallon, while electricity for power and light came to 30 cents per green ton.

Owing to the short season and the interference caused by experimental work, it was impossible to secure reliable labor costs. It is felt certain that labor costs for dehydration can be materially less because the truckloads of fruit are taken directly from

(Continued on Page 34)

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**CLARKADOTA FIG**

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The Clarkadota Fig is the—

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Clarkadota Fig orchards have paid the entire cost of land and care in a five-year period.
Clarkadota Figs are practically SEEDLESS.
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The DIENER TOMATO is blight-resisting as well as drought-resisting. It will not crack from the rain and will not rot while lying on the ground in wet weather. This tomato will grow in almost any kind of soil and it commences to ripen the first part of August.

It is the greatest novelty in the tomato line, and it will soon crowd out the present varieties from the market by its far superior qualities.

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# There's Money to Be Made With Berries

By Charles L. Schufeldt

THE opportunities are big for profitable growing of berries in California. As land values increase, large commercial orchards have become almost unobtainable, and many orchardists and farmers are considering the raising of berries. It is true that more labor is required in the growing of berries than in the case of tree fruits, but the work is of a lighter nature, and the return per acre often is larger.

Chas. L. Schufeldt

Growers also are beginning to realize the practical value of berries for the home garden, and whether they are grown for home use entirely, or for the market, the cultural methods are much the same.

Berry-growing problems are peculiar in themselves. Methods must be precise, and careful attention to detail is required. However, compensation is dependent upon the amount of effort and attention given, and the best products are secured only by the best of care.

### Important Considerations

The factors to be carefully considered before starting a berry farming project are: Nearness to market, securing of labor during picking time, water supply, soil conditions, climate and the securing of experienced help to lay out and plant the fields. One of the best means of getting berries to market is a light roadster or truck with pneumatic tires and good springs which will minimize the jar and jolt.

Should the local market for fresh berries become over-supplied, the use of stands on the boulevards offering them, as well as canned berries for sale, suggests a means of disposal at a good profit. It costs less to sell products at such stands than to deliver them to distant markets.

The income from berries is realized sooner than from tree fruits, and it is generally accepted that a profit may be shown the first twelve months; gross incomes of $1500 to $3000 per acre are not uncommon. The net income per acre should average from about $800 to $2000.

When planting any variety of berries the best results will be obtained in a climate as free from late, killing frosts as possible. In a region where killing frosts occur, after a protracted warm spell has brought out the blossoms, berry production will be hazardous. Avoid swales or situations where cold air currents sweep from higher levels. A warm, protected location will insure early berries, which command the best prices. All small fruits should be shallow rooted and well supplied with organic matter. Moderately heavy, sandy-loam soils, with good drainage, are preferable. Such soil makes it easier to maintain a constant moisture supply. Blackberries, raspberries and loganberries will adapt themselves to a wider variety of soils than will strawberries, which thrive best in a strong, rich soil. Strawberries produce fairly well on sandy loam soils, well irrigated and supplied with plenty of organic matter.

### Varieties of Blackberries

The new Thornless Blackberry by all means should be included in the varieties planted. The berries can be picked three or four times as fast as those growing on thorny bushes, and they bear heavily and are well flavored.

The dewberry blackberry is early and a heavy producer. While not as large as some of the other varieties, it brings a good price because of its early production. The Himalaya, Mammoth, Corey's Thornless and the Loganberry blackberry are good producers. The United States Department of Agriculture has reported the discovery of a new blackberry about four times as large as any domestic type in the wild regions of South America.

It might be well for a prospective commercial grower of berries to get in touch with the Department of Agriculture at Washington for information concerning this berry. Bulletins from the various Experimental Stations: Berkeley, Corvallis, Ore., and Tucson, Ariz., contain much helpful information.

### Strawberry Varieties

Albert Etter of Ettersburg, Cal., has produced a number of excellent varieties of strawberries. The Marshall or Banner is a large round berry popular in Central California. Jessie is smaller, but prolific. Gold Dollar is a conic shaped, verp productive berry, and other proven varieties are Excelsior, Oregon and Nick Ohmer. The Klondike is very popular in Southern California. Do not be deceived by the variety known as Everbearing. It is true that some varieties continue to bear longer than others, but none really deserves the name "Everbearing."

### Red Raspberries, Black Caps

The Cuthbert red raspberry is planted almost exclusively in California, and the Superlative is a promising new variety. The Gregg black raspberry is a very satisfactory bearer and does well in Southern California. Black raspberries are ready sellers, and the supply never has equaled the demand in the larger markets. Currants and gooseberries do well in protected regions under ocean influence, but neither has proved successful in interior valleys.

## Sulphur—A Tonic for Sick Fields

(Continued from Page 10)

which does not need lime. Even where lime is needed the latter can be most economically applied in the form of ground limestone rock. It is best, however, to apply the sulphur separately in order to secure the proper quantity.

Another important reason why sulphur should be applied separately to the soil, instead of in other compounds, is that sulphur in land plaster exists in the sulphate form, which is available for plant food, and therefore is immediately consumed, necessitating additional applications for successive crops. On the other hand, when flour of sulphur is applied to the soil, it must first change to sulphate form before it can be used by plants, and as this chemical change requires from two to three years for completion, the good effects of soil sulphuring continue throughout that length of time. Thus it will be seen that sulphur only need be applied to the soil once in two or three years. It should be applied in the fall, allowing time for part of it to change to sulphate form before it is needed in the spring for plant food.

It has been estimated that, by the addition of one ton of sulphur to 100,000 acres, the value of the alfalfa crop of Eastern Oregon may be increased $1,000,000 a year. This seems to be the average added yield, although considerably larger increases have been obtained. Corn and peas, as well as alfalfa, have been greatly benefited in Southern Oregon by sulphuring. Excellent results through the use of sulphur have been obtained in the following Oregon counties: Jackson, Lake, Klamath, Des Chutes, Umatilla, Morrow, Malheur, Wasco, Union and Wallowa.

The reason that sulphur does not benefit some soils is because they are sour, and sulphur tends to increase acidity. Dry soils, as a rule, contain more lime than wet ground, the former averaging 1.3 per cent and the latter .10 to .15 per cent. In Des Chutes County the lime content runs as high as 5 per cent, while in the Willamette Valley lime practically does not exist. Average Oregon soil contains only enough sulphur to produce 10 to 18 crops, provided each

(Continued on Next Page)

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## Sulphur—A Tonic for Sick Fields

(Continued from Page 24)

crop receives the full amount of this substance needed.

### Co-Operative Buying

Soil sulphuring has become a popular farm bureau project in many communities. In Des Chutes County, sulphur clubs have been formed, each member agreeing to take at least 500 pounds of the yellow dust. A saving of $2000 was effected on a single co-operative shipment. During the past season 17 carloads of sulphur was used in this county and probably an equal or greater quantity in the remainder of the State. This shows the magnitude of the possible market for sulphur when its use as a fertilizer becomes more general. Prospective investors in the business of producing and distributing sulphur might profit by this information.

Jackson County farmers were being charged $85 to $100 a ton for sulphur by local dealers; therefore they clubbed together, using the machinery of the farm bureau exchange, and obtained this chemical for $47 a ton, thus saving nearly one-half of their money. Considerable difficulty was experienced, however, in obtaining a supply of sulphur from wholesale dealers. Farmers elsewhere who contemplate buying sulphur co-operatively are advised to write to the County Agent, Medford, Ore., for information as to procedure in this matter.

# Advice for Milk Goat Raisers

By Dr. J. F. Farmer

BY FAR the most important individual in the goat yard is the pregnant doe, particularly when she is heavy with kids. She should have comfortable quarters, segregated if possible, plenty of green feed if available, and in lieu of green feed, beet pulp well soaked with clean water, which is an excellent substitute.

The doe needs less grain than when being milked and yet there is a point which ought to be considered; namely, that she can take more nourishment in less space from grain than from hay and roughage.

Her abdominal cavity gradually is being filled with the growing kids, and therefore in the case of heavy producers this item of space is well worth consideration. She will be well nourished, which is right, and yet be more comfortable while coming to kidding time with requisite strength and comfort.

The precaution, however, in feeding grain is to feed so that the bowel does not become clogged, because the doe exercises less and less, and this reduction in moving about takes away the natural stimulus; this is the reason for careful watching of bowel condition in cases of pregnant does.

### Know the Reason

One who cares for animals has an unlimited field for study and observation open to him at all times. He may read certain rules for tending his charge; and yet, unless he knows the "why" of these rules he is not in a position to do independent and constructive work, but becomes merely one who copies. This may be well enough, but he who would really succeed is not content with such methods.

The foregoing points upon the care of the pregnant doe offer a case in point. If the owner does not know that plenty of exercise increases the peristaltic action (bowel or intestinal activity), then the direction to feed grain sparingly may not impress him and he is liable to err on one side or the other. Whereas, if he knows the underlying reason he can judge for himself as to the doe's condition and the best means of feeding her.

It is an advisable plan on cold mornings to warm the drinking water of does about to kid, because the doe needs plenty of water, and if the water be cold she drinks sparingly. If lacking water in the system she does not digest her food as well. Finally, she may be driven by thirst to drink quantities of cold water, which chills the kids, beside reducing the vitality of the dam.

### Trimming the Hoofs

The hoofs of the doe ought to be trimmed closely as late in the gestation period as possible without danger of injury from struggling. They may be cut off more easily with some does than with others, because some are more used to handling than others or do not resist as vigorously. The trimming, therefore, ought to be done about six weeks to two months before kidding, and then as gently as possible.

The reason for this is that as the doo grows heavier and heavier she needs the full natural use of her feet, or else she walks back on her heels and later her ankles. Cases are known where the doe has had to lie down the last few days of pregnancy, simply because of the lack of care of her feet, especially the hind feet.

## Expansion of Goat Industry Remarkable

THE goat business is rapidly taking on proportions, as more and more wide-awake individuals see the large field for this industry. It offers a living at least to those who may be physically unable to do heavier work, or who wish an out of doors occupation that will bring in returns.

It is a splendid field for women, as more and more of them are making a success of raising goats.

There is one great obstacle, however, to raising goats, and that is the frequent lack of love in the heart of the ono considering the enterprise. Above all else, goats to be profitable need those who love animals to care for and feed them. This seems to be more true with goats than nearly any other domestic animal. Therefore, the goat business has no place for one who does not love animals as an actual caretaker, although one may invest his money in the business with only the love of the dollar to prompt him.

The returns from this business are the milk, kids, meat and manure. The milk is the most economical source of the invaluable food milk, as goats produce milk cheaper than can a cow, and the goat is clean and without the offensive odor of Bossie.

The milk is far more easily digested than that of the cow, because the curd which forms in the stomach is far more easily broken up than the curd from cow's milk.

This is the reason why bables that can not digest anything else can thrive on goat's milk. Also tho milk is the nearest to the milk of the human mother that we have. The kids from registered stock and heavy milkers bring good returns upon the market. Still the goat industry is not known in a large part of the United States, despite the fact that in Europe the goat often is the only source of milk.

The meat of the kids is as fine as any known, and is used by goatkeepers very often. The manure is the best fertilizer known, as it can be placed next to very delicate plants with no bad results, and in and around Los Angeles sells as high as $2.50 for a sack.

From these sources the goat business offers a living for those who like to carry it on, and to some it is a money making business. The returns depend in this, as in every other enterprise, upon the ability of the owner of the business.

## "Barn Yard Apartment"

APARTMENT buildings are not confined to the use of city dwellers only, but have found a place on the farm as the newest type of shelter for the farm fowls and animals. By building a three-story structure, chickens may be kept on the ground floor, rabbits on the second and pigeons on the third.—A. Ross, Ripon, Cal. (H.)

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### Sawdust Fertilizer

Does sawdust benefit the soil, or does it cause acidity in clay or adobes? Also, does redwood or pine sawdust affect soils differently?—J. Hitchcock, Napa, Calif.

**Professor Weldon's Reply**

There is little definite information on this subject, but the general opinion seems to be that sawdust in any large quantity is detrimental to the growth of trees and other crops. In the sawdust of pines there would be a certain amount of turpentine, which might result in injury. It is possible that the redwood sawdust would be safer than pine sawdust.

The rotting of this material takes place rather slowly. It perhaps would have the effect of loosening a heavy soil. However, I think, according to the testimony of those who have experimented along this line, it is not safe to apply in quantities.

J. C. Whitten, professor of pomology, University of California, has this to say regarding the use of sawdust in soils: "In the pine districts of Missouri growers were of the emphatic opinion that pine sawdust injured the soil. Possibly the turpentine or other products from it had a bad effect on the soil or on the plant roots. Fresh redwood braces placed to spread the branches of young pear trees in an orchard in this county last winter poisoned the bark and growing layer so as to kill it nearly all around the limb for a distance of eight inches."

While we could not draw definite conclusions from these observations, it is safe to recommend that one go slow in the use of sawdust until careful experiments have indicated that it is of some value.

### Care of Dairy Utensils

LAST week a dairyman asked my opinion of a milk cooler he had recently purchased from another dairyman who had not used it for some time. He told me that his friend had purchased it new less than a year ago. Examination showed that the cooler was badly corroded and would not be fit for use until it had been retinned. Such occurrences are not rare. Dairy machinery and utensils often are left to rust and corrode so that when they are needed they are not fit to use.

A cooler or separator bowl that is not going to be used for a while should be washed and dried, then thoroughly coated with grease, wrapped in paper and stored in a dry place. The interior of cheese vats, pasteurizers, etc., likewise should be coated with grease and covered to exclude dust.

Milk cans and buckets should not be used for boiling water or handling waste skim milk.

A little care in these matters will do away with considerable loss, as milk cans that are rusty, or coolers and separators that are corroded, can not rightly be used for handling milk and cream.—M. E. Coulter.

*An Ingenious Burner for Grape Vines*

*This device consists of a sheet iron cart, mounted on metal trucks. To the single front wheel is fitted a "tiller" for steering. The team is hitched by means of a long cable. The dry prunings are burned as rapidly as they are picked up, while the horses are removed from the heat and smoke. (Photo by Geo. P. Weldon.)*

## Why and How to Save the Surface

*Here is some real brass-tacks information about painting and prevention of decay, rusting and disintegration. Those accustomed to regard paint as a luxury are invited to debate the cold logic of the "Save-the-Surface" advocates.*

Of tan, the small boy has a coat;
The knights wore coats of mail—
A coat of hair adorns the goat,
And thereby hangs a tale.
—Justin Nutt.

ALL of Nature is coated for protection, and endless are the styles of coats that man has devised to protect his own body. But strangely enough he allows the products of his genius—his buildings, homes and machinery—to be exposed to the elements, when often just a coat of paint would save them.

Particularly do we farm folk err in this respect. But we are beginning to realize as never before the fact that "painting pays." Just why millions of dollars' worth of farm machinery annually should be allowed to rust and disintegrate through exposure has never been explained.

True, sheds are expensive and even they may not exclude dampness and prevent rust. Therefore there is a growing tendency to paint and protect machinery for which no shelter is available. It has been said that if a farm implement could be kept in constant use it would last twice as long as ordinarily. It is estimated that 50 per cent of the machinery purchased by farmers is "junked" before it has performed half the work which it is capable of doing!

The best rust preventive on iron or steel for practical purposes is red lead, but in using it, particular care should be taken to remove all rust before applying the paint. Since red lead is very hard and inelastic, this coat should be followed by an elastic, ready-mixed oil paint. If protective

[illegible] aluminum paint will prove satisfactory.

On galvanized iron, galvanized iron paint is especially made to adhere to galvanized surfaces. On movable parts of machinery a heavy coating of grease will prevent rust indefinitely. At the beginning of a planting or harvesting season this grease can be removed with the least amount of time and trouble.

The appearance of wagons, carts, or trucks, if not badly in need of paint, may be greatly enhanced by a coating of a wagon coach varnish.

### Paints for Buildings

As for buildings, manufacturers have devised ready-mixed paints best suited to especial uses, such as roof protection, outside work on barns and outbuildings, exterior house painting and interior protection and decorating. The wise buyer will take advantage of the experience of the manufacturers, by buying a reliable brand, of the type best adapted to the work in hand.

The best protection for the outside surface of all farm buildings is a first-class, ready-mixed paint.

The cheapest of all paints, very satisfactory for certain purposes, is so-called "cold-water paint." This makes a sanitary coating for the interior of stables and other out-buildings.

Whitewash, of course, is an old standby of great value. Many poultry and stock raisers mix disinfectant with the whitewash. One paint manufacturer is marketing a special poultry-house paint, containing a carbolic disinfectant.

### For Interior Enameling

For interior use in dairy houses, where cleanliness and absolutely sanitary conditions are necessary, an enamel which dries very quickly and can be washed without injury and which will withstand all gases and fumes should be used.

Elastic cement will be found a very useful article for farmers' use in stopping leaks in roofs, watering-troughs and tanks, silos, water pipes, cisterns and the like.

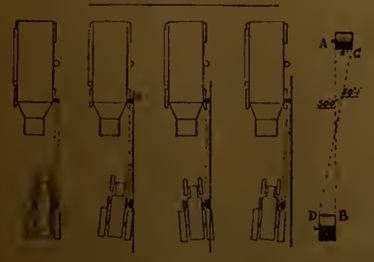
### Wood Preservatives Valuable

The science of surface protection also includes treatment to prevent decay. The amount of wood used on the farms of the country and exposed to rapid decay is enormous. It is estimated that one billion fence posts, rails and ties—the equivalent of six billion board feet, are required each year in replacement work alone. For this class of work durability is the first requisite, and if by treatment with a preservative we are able to prolong life as much as 200 to 500 per cent, it is easy to see that a preservative treatment is worth while. As a result of tests over a long period, it may be said that any post properly treated with carbolineum or other reliable preparation will last on an average of 20 years, while the average life of an untreated post is four to eight years.

### Luxury or Necessity?

Too many farmers are wont to regard paint, varnish and rust or decay-preventives as luxuries, valuable only for improving the appearance of property. True, this is one important factor, but protection is the more important.

Longer life and better appearance, taken together, however, spell "good business." Not long ago a man was asked what brought him such an attractive price for his ranch. He answered, "It was paint on my buildings, whitewash in the barns and grease on the plow-shares." His experience points the moral to our "Tale."




*Watch Belt Alignment!*

*These sketches show effects of misalignment and explain why belts "run off" for no apparent reason. If the belt is crowded the result is an uneven [illegible] shown in sketch ABCD at right. Just a good line on the belt being worth the job!*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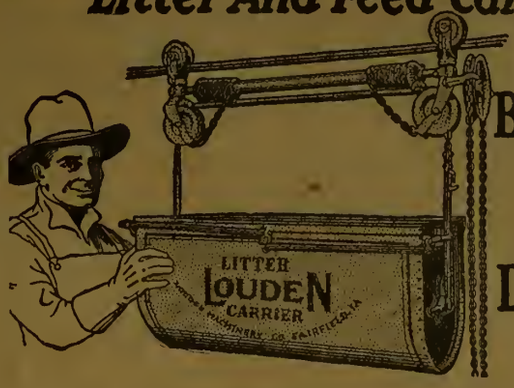


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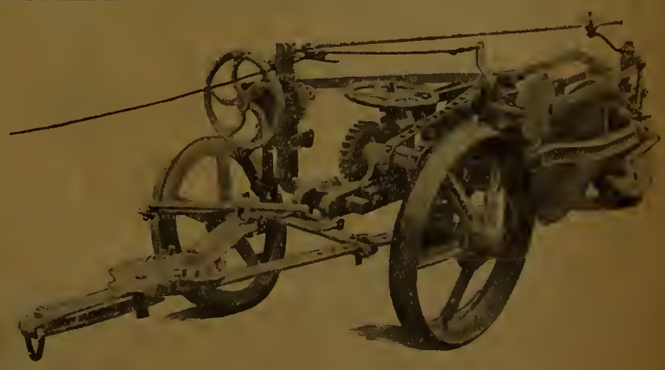

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# A Discussion of Walnut Pruning

*There was a time when most of the walnut pruning was done by men with hatchets, carrying a hatchet. Was done by a man on horseback, carrying a hatchet." Two things were accomplished: The year's supply of firewood was obtained and the trees were "raised" so that horses could work under the limbs. Now things are different. Here modern methods are explained.*

By Robert W. Hodgson

(Written Especially for Orchard and Farm)

NOT so many years ago the average walnut grower's program consisted mainly of one or two seasonal irrigations, an occasional hacking of the lower limbs of his trees and perhaps a shallow spring plowing, followed by indifferent cultivation.

Robt. W. Hodgson

Times have changed however. Higher prices for nuts have brought with them equal increased land values. The investment in a walnut grove today is of sufficient importance to warrant protection by the use of improved methods. Experimental work conducted by the State College of Agriculture has proved conclusively a higher yield and better quality result from the use of modern methods in orchard technique.

And foreign competition has driven the lesson by bringing home of recent years more clearly than ever before the paramount importance of quality in establishing profitable markets. Today the big factor in moving California walnuts in the face of huge European and Manchurian imports is quality, pure and simple.

### Pruning Seriously Studied

And along with greater interest in cultural methods in general has developed the greatest interest in improved pruning methods. Realizing the absolute lack of information available on the subject, several years ago the field department of the California Walnut Association and the University of California entered into a cooperative pruning project.

Plots of trees pruned by different methods were located in the various important walnut districts. These have been kept pruned and under observation for some four or five years but as yet no report has been rendered. In the meantime, growers are clamoring for information and a variety of practices are in vogue, some obviously bad, some good and others problematical as to results.

Progressive growers in many districts, however, as well as experiment station and extension workers have come to agree on a certain few principles which seem capable of proof and upon which a rational system of pruning may be based at least until such time as experimental work is concluded.

### Importance of Light

Forest trees like sunshine, the walnut must not be planted too closely [illegible] of the older [illegible] fault I [illegible] the bearing period [illegible] lower strikes the ground [illegible] the branches from adjacent trees are seen to intermingle [illegible].

These faults generally are recognized and wider distances of planting now are in vogue—fifty feet in the [illegible] lighter soils and sixty in the heavier [illegible] having old [illegible] and to [illegible] crop [illegible] And [illegible] the [illegible] the [illegible] a [illegible]

*A Walnut grove showing result of proper pruning methods.*

[illegible] which growers aspire, [illegible] have been pruned [illegible] from all sides. [illegible] are that the [illegible] farther apart, and [illegible] pruned so as to admit the entrance of more sunlight.

The absence of sunlight from the interior of the trees in many cases has caused the start of and death of the fruit bearing wood on the interior of the tree to the point where

### Methods of Thinning

Opening up of the trees is being accomplished in various ways. Some attempt to do it by a thinning of the outer shell of foliage, a slow and laborious job. Others obtain the desired effect by the removal of a few rather large limbs, which leaves "gores" in the outer shell through which the sunlight may penetrate. One of the largest as well as progressive growers, Carlyle Thorpe, manager of the Walnut Association, practices the removal of sufficient material to leave a funnel shaped opening entirely around the main leader, and claims to have secured splendid results through this method. It is probable that the best results are to be had not by the adoption of any empirical system, but rather by judicious thinning, regularly practiced, so as to keep the trees always reasonably open to sunlight.

The removal of low-hanging branches which interfere with cultivation generally is agreed upon as necessary, although many have found that it is profitable, where higher up branches do not fill out the space occupied, to support these branches with strong wire. The practice of bracing, using strong wire supports attached to screw-eyes or bolts, is on the increase and apparently with very good reason.

Every violent windstorm means a certain amount of breakage of valuable walnut trees, particularly in districts where crotch unions, due to conditions favoring rapid tree growth, are found to be somewhat weaker than on the average.

This may be largely prevented by the use of strong wire braces stretched from limbs on opposite sides of the tree or hung from the central leader. The most popular method of attaching such braces is the screw eye.

### The Young Tree

In some districts considerable trouble has been experienced in certain of the framework branches in trees from time of setting to five or six years, growing out much longer than the others and making the tree badly out of shape. This particularly is a vexatious problem in windy districts, where it causes the trees to lean.

Enough of the physiology of fruit and nut trees is now known to indicate the proper procedure. Instead of letting such branches alone and cutting back the others, which has been too often the practice, the very opposite procedure should be followed. Such branches should be repressed by heading back, the others being given the advantage by no heading. But with exceptions such as the one referred to, walnut growers are unanimous in agreeing that heading-back should not be practiced.

Much heavy cutting of the larger trees for the purpose of light penetration can be eliminated if poor framework branches and cross limbs are removed while the trees are still young and in the formative period. Attention to framework formation at that period is generally agreed upon as well worth while.

### Wounds Should Be Dressed

Fortunately, the period of axe-pruning, with its aftermath of stubs and wood decay, is past, but still are found in all too many orchards evidences of poor pruning practice. Stubs left where branches were not cut off substantially against the trunk furnish ideal points for the entrance of wood decay. And the walnut is particularly subject to heart rot and kindred diseases. All wounds above an inch in diameter should be carefully sealed over, it being understood, of course, that [illegible] cuts be neatly made and [illegible] to the number mother [illegible] in order to [illegible]

Suitable dressings include an assortment of materials. Grafting wax is perhaps best, but rather expensive. The cheapest and most satisfactory dressings are those of an asphaltum base. Liquid asphaltum is excellent, and various methods of putting the solid form into solution are in common use by growers.

Where old wounds exist and deep cavities have occurred from heart rot considerable care is necessary in cleaning out the cavities in order to get out all the decayed wood. Such cavities may be filled to advantage with a mixture of equal parts of asphaltum and sawdust.


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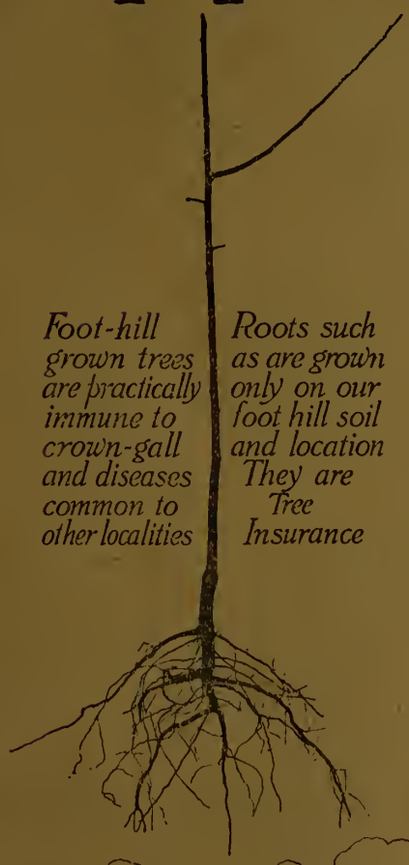

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# Pollination of Deciduous Fruits

*This is the second article on pollination, written especially for ORCHARD and FARM by Professor Tufts, and containing vital and invaluable information for the fruit-grower.*

By Warren P. Tufts
Ass't. Professor of Pomology, University of California.

THE orchardist, in laying his plans for the planting season, should consider seriously the necessity of providing proper cross-pollination facilities. Certain of our deciduous fruits should not be planted in solid blocks of a single variety, it being better with such fruits to plant two varieties adjacent to each other.

Certain varieties of fruit are "self-sterile" and it is necessary to interplant with these varieties other varieties of the same kind of fruit which have been shown by experiment or experience to be inter-fertile with the desired kind. Those fruits which will mature a crop without the aid of the pollen of another variety may be termed "self-fertile." "Self-sterile" varieties are those which will produce no fruit unless pollinated by another variety. In the case of some fruits, notably the sweet cherry and the almond, certain varieties may be termed "inter-sterile" in that they are incapable of producing fruit when they pollenize each other. The term "inter-fertile" is naturally used as opposed to "inter-sterile."

### Provide Transfer Agency.

After having planted inter-fertile varieties, the orchardist should by all means provide an agency for the transfer of the pollen from trees of one variety to those of another. The common honey-bee is the best carrier of pollen and it will pay the grower to keep bees, even though he might not care to go into the honey business. Bees, however are a very profitable side line for the orchardist, especially if alfalfa fields are available for them to work on after the blooming season of the fruits. About one hive of bees to an acre of bearing orchard should be provided.

In selecting varieties with a view to securing the best cross-pollination, the orchardist should choose profitable commerical kinds which are inter-fertile, and abundant pollen producers, blooming at the same time, or at least with blooming periods overlapping five or six days. Preferably the varieties should come into bearing at about the same age, or else there may be several unprofitable years before the pollenizing variety begins blooming. For the commercial orchard, too many varieties should not be planted. One variety, planted as a pollenizer for the main commercial variety, if it fills the specified requirements, will be just as efficient as several.

### Planting Suggestions.

In planting an orchard it is desirable to have at least every sixth, and preferably every fourth row of the pollenizing variety. In order to facilitate the management of the orchard and the harvesting of the crop, it is best to plant two rows of one kind, then two rows of the pollenizing variety, and repeat the process; or, if it is desired to have more of one kind than another, four rows of the favored variety, then two rows of the pollenizer and repeat.

For one reason or another it is often desirable to reduce the number of pollenizing trees to a minimum. Under these circumstances, one tree in twenty-five is perhaps sufficient, although many authorities recommend one tree in eight, and this last advice seems the safest to follow. It is seldom wise to graft only a part of a tree to the pollenizing variety, as this tends towards confusion and expense in harvesting. If by chance a self-sterile variety has been planted in a solid block some relief may be obtained during the years while waiting for the trees grafted over to the pollenizing variety to come into bearing by cutting off rather large limbs of a pollenizing variety, placing the cut ends of these in buckets of water and distributing these throughout the orchard during the blooming period. They will live for several days and continue to bloom for the bees to work upon.

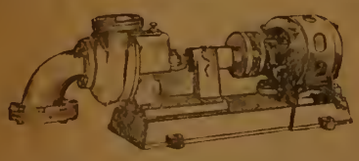
*"It's the Little Things That Count"*

*Most successful orchardists attach great importance to "side lines." Bees are the profit-boosters on many ranches, pollinating the trees in addition to furnishing a valuable crop of their own. The illustration shows a flock of ewes and lambs in a San Bernardino County deciduous orchard. Their owner depends upon them to return his cover-crop to the soil, and then turns the animals at a nice profit.*

### Give Bees a Chance.

From what has been stated above it is not to be concluded that all the orchardist has to do to insure for himself a full crop of fruit every year is to plant inter-fertile varieties. Eliminating from consideration all conditions which may influence the fruitfulness of an orchard except those occuring at blooming time we may say that besides the barrenness of any variety, the "set" of fruit is largely influenced by weather conditions at the time of bloom.

Cold weather, aside from actually killing the blossoms very often prevents the bees from working thus materially reducing the crop. The same statement may be repeated for cloudy, wet and windy weather. For these

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work bees demand clear, warm and quiet days, and since the weather at this time of the year is often quite unsettled, it is readily seen that the blooming period of the various pollenizing varieties should overlap perhaps a week in order that there may be one or two days at least when the weather will be favorable for insect pollination.

Experiments conducted by the Division of Pomology of the University of California during the past seven years are largely responsible for the accompanying specific suggestions and recommendations.

### Apple Pollination.

Nearly all varieties of apples may be considered to be practically self-sterile. No cases of absolute inter-sterility have yet been reported as existing between apple varieties.

The following commercial varieties, while not a complete list, are grouped together according to time of blossoming. Any variety in either list may be used to pollinate any other variety in the same group.

**EARLY BLOOMERS**

| | |
|---|---|
| Gravenstein | McIntosh |
| Oldenburg | **Newton |
| Red Astrachan | Northern Spy |
| Tetosky | Ortley |
| Wealthy | Red Cheek Pippin |
| Yellow Transparent | Rome Beauty |
| Arkansas Black | Spitzenburg |
| Baldwin | Wagener |
| Ben Davis | Willow Twig |
| Black Twig | Wh. Wint. Pearmain |
| Gano | **Yellow Bellflowers |
| Grimes Golden | Winesap (generally a |
| Jonathan | shy pollen producer.) |

In many localities Gravenstein and Yellow Transparent bloom sufficiently late to pollenize those listed as late bloomers.

**Experiments conducted in the Pajaro Valley during 1919 and 1920 show that under certain conditions at least, the above general recommendations may not prove entirely reliable. Flowers of the Yellow Newton when crossed with pollen from the Yellow Bellflower produced an exceptionally high yield, but the reciprocal cross, under the same conditions, did not give satisfactory results. Yellow Newton set quite satisfactory crops when self-pollinated.

### Pear Pollination.

Pears are benefited by cross-pollination. Twenty-four varieties have been tested by the Pomology Division under various California conditions.

In no instance has any variety proved self-fertile under all conditions and during all seasons. Only five of these twenty-four have shown a tendency under certain conditions towards self-fertility.

Bartlett pears are to a certain extent self-fertile under valley conditions, and are in most instances self-sterile under foothill conditions.

No cases of inter-sterility have been found to exist between pear varieties. Pears in most cases, have a comparatively short period of bloom. The varieties tested may be divided roughly into early and late bloomers (Sacramento Valley conditions), as follows:

**EARLY BLOOMERS**

| | |
|---|---|
| Alencon | Angouleme |
| Bartlett | Clairgeau |
| Dana Hovey | Easter |
| Forelle | Howell |
| Kieffer | Le Conte |
| P. Barry | Seckel |
| Wilder | |

**LATE BLOOMERS**

| | |
|---|---|
| Anjou | Bartlett |
| Bloodgood | Bosc |
| B. S. Fox | Clapp |
| Comet | Comice |
| Gifford | Glout Morceau |
| Hardy | Winter Bartlett |
| Winter Nells | |

The following varieties tested under California conditions have proved to be successful pollenizers for the Bartlett

| | |
|---|---|
| Angouleme | Comice |
| Anjou | Dana Hovey |
| Clairgeau | Easter |
| Howell | Winter Nells |

### Almond Pollination.

The following almond varieties are self-sterile under California conditions:

| | |
|---|---|
| [illegible] Paper Shell | King |
| [illegible] | Klondike |
| [illegible] | Lewelling |

(Continued on Page 35)


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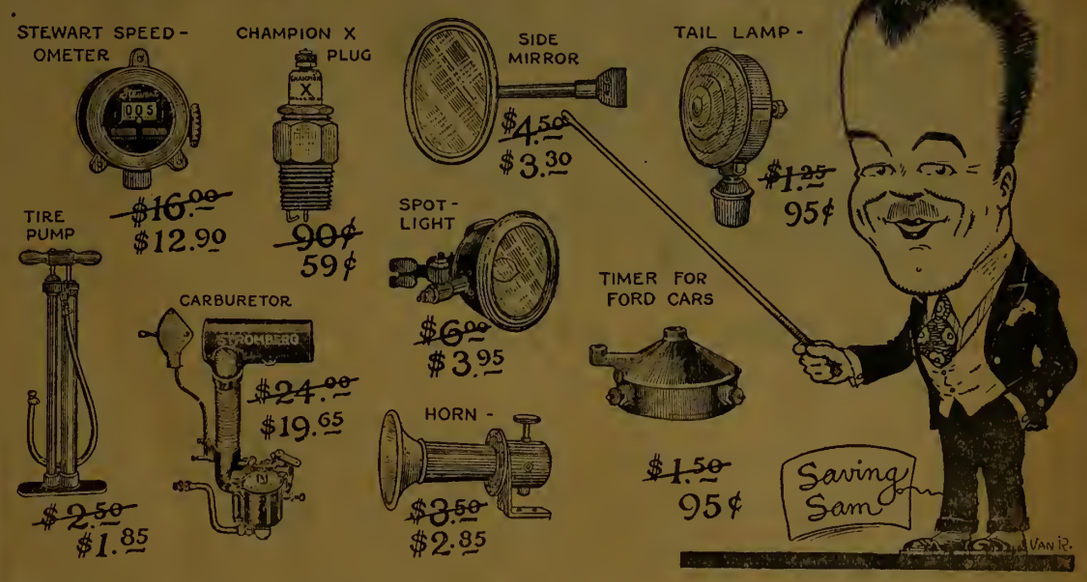


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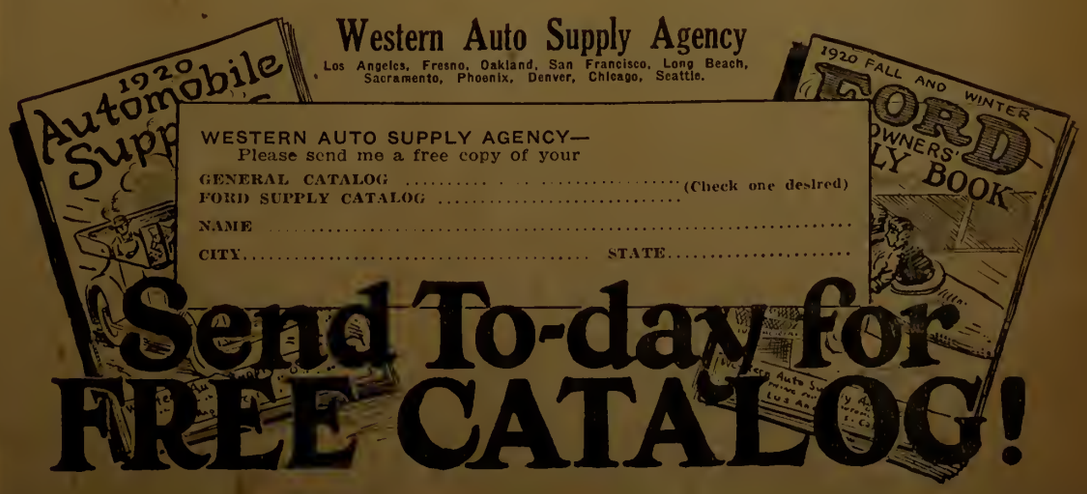


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# Why I Boost the Kadota Fig

*"A horticultural marvel" is the term used by many enthusiasts to describe the Kadota fig. It is said to be unlike any other variety and has opened new commercial possibilities. Therefore, we asked Mr. Clark, acknowledged the leading authority on Kadota growing, to prepare this special article.*—Editor.

By W. Sam Clark

ORIGINATING as a freak or "sport" and first recognized by Stephen H. Taft of Sawtelle, the Kadota fig, mysterious product of California sunshine, has made a place of its own in the fruit industry of the State.

The most remarkable attribute of the Kadota fig is the fact that it is picked only fresh, and as a shipping and canning variety has opened up new industries, new possibilities for profit, and entirely original methods of handling.

### New Methods Developed

My attempts to manage my original Kadota orchard along the same lines employed in growing ordinary figs caused me years of worry and financial loss. Briefly, the proven and successful methods now employed in propagating the Kadota are as follows: Trees are planted in squares 25x25; young trees are crowned within 12 inches of the ground; pruning is done annually along lines which form a low, flat, wide-spreading tree, the crop from which may be gathered by a picker standing on the ground, or using a very short ladder.

As a guide to Kadota growers, the Fig and Olive Journal, 311 East Fourth street, Los Angeles, has published a book discussing in detail all branches of Kadota production. This may be obtained for $1.00 postpaid. (ORCHARD and FARM is indebted to the Fig and Olive Journal for the cuts reproduced herewith.)

Interesting are the unusual practices employed in managing the Kadota orchard. Heavy irrigation is essential. If rains are not late and ample, water is applied in May; again a heavy soaking may be necessary in June. After gathering the June crop, the grower may irrigate again late in July, and finally, in the case of older trees, in the first days of September. This extensive irrigation program is necessary because of the fact that the Kadota carries a ripening crop of fruit during a period of nearly five months, while seven-yeas-old trees may attain a bearing surface 100 feet in circumference.

Experiments have shown that the furrow system of irrigation, with small streams applied over a period of several days, is superior to either the check or flood system. Over-irrigation is almost impossible, the only danger being that the ground will become too muddy for picking.

### Unusual Bearing Qualities

At one time during the bearing season one may see all sizes of fruit, from the tiny new fig to those of largest diameter, golden yellow in color and ready for gathering. Three days later, another crop may await the picking crew, and so on for over four months.

This summer my crews gathered figs weekly from 10-month-old trees, the size of the crop being sufficient to warrant gathering by men receiving high wages. The picking season furnished ample evidence of the value of low pruning, the fruit being taken from the low, symmetrical trees at a small cost per ton as compared with the higher trees.

### Advantages in Picking

Galvanized picking buckets 3½ inches deep and 18 inches long (of oblong shape) were used. We paid 45 cents an hour, a bonus of ¼-cent per pound being sufficient to bring the average daily wage up to about $6.00. The ideal labor conditions afforded by the Kadota fig are recommended highly under present conditions. The pickers are assured of a long season, while the cleanly work and upright position that can be maintained attract a desirable class of labor.

*(1) Kadota tree 34 months after planting.*
*(2) Third pruning. Note desirable bush effect.*

Our pickers carry loaded baskets of fruit to the packing house, where girls separate first and second grades. Canners have paid the grower on the basis of weights at shipping points, where delivery is made.

Having had a taste of canned and preserved Kadota figs, consumers in the East created a demand this year for a larger tonnage than was available.

### An Unlimited Market

European competition never will injure Kadota growers. The liking for the fig is not confined to any one race or country, and it is generally agreed that consumption may be greatly increased by advertising and publicity. Moreover, the great "dry" wave has created an intensive demand for sweets. Many are the uses to which the wonderful Kadota may be put. It is used for glace fruit, pickles, marmalade, jam, candy filling, jellies and preserves, while for eating as a fresh fruit, it has no equal.

In the face of a demand exceeding the supply, we held the price of fresh Kadota figs during the past year to 10 cents a pound, an advance in five years of only 85%, as compared with much larger increase in the prices of other fruit. We apportioned the crop to various canners so that distribution would be obtained in all parts of the United States.

In conclusion, may I compare the

[illegible] with standard varieties of figs? This is the only way properly to measure the value of any farm product.

### Comparison With Others

Our oldest California fig is the grand old Blue Mission, introduced by the Fathers so long ago. It is a wonderful fruit, but at seven years may yield about 1500 pounds to the acre. At seven years a Kadota orchard, although producing a shy crop due to excessive heat, yielded three and one-half tons per acre.

In comparison with the Adriatic (drying) the Kadota makes even a better showing. Next let us take the Smyrna, or white drying fig. An average yield from a typical seven-year-old orchard of this variety brought a little over $225 an acre. A Kadota orchard of the same age yielded $700 an acre.

Up to October, 1920, the actual money I have received from the sale of my Kadota figs from an orchard planted in 1913 was $1495 an acre.

### Be Sure of Your Stock

The acreage planted to the Kadota is increasing by leaps and bounds, but it is time a warning was issued to prospective planters. They should look well to the origin of the nursery stock they buy and plant for Kadota. So great has been the demand for three years past that all manner of hoaxes have been perpetrated through "fly-by-night" nurseries.

Honorable nurserymen, too, unintentionally have been guilty of misrepresentation. Thinking they were selling the Kadota, they have distributed inferior brush palmed off upon them by unscrupulous growers.

All growers of the real Kadota are enthusiastic as to future demand. As this remarkable fig becomes better known the demand will be more than can keep pace with new plantings. The Kadota is one of California's greatest horticultural triumphs.

## Long Pruning

IN ORDER to distinguish between the old, heavy-cutting method of pruning, the new method is often called "long pruning." By long pruning is meant the pruning of trees by thinning out or removing undesirable, interfering branches without any cutting back from the tips.

The old method of heavy cutting back from the tips resulted in much new wood growth, but was not conducive to the heaviest fruit production, though sometimes the fruit was superior.

Long pruning may not be light pruning, as some have thought, as heavy thinning out of small branches must take place so that the fruit will be desirable, commercial sizes.

Demonstrations everywhere have indicated that there must be a departure from the system of heavy topping or tree butchery to a sane method of pruning wherein the tips of the branches with their ordinarily heavy bearing propensities, are left. It does not necessarily follow that cutting back from the tips will cease entirely, and there may be a mean between the two extremes of heavy cutting back and no cutting back that, for average conditions and average trees, may be desirable.—George P. Weldon.

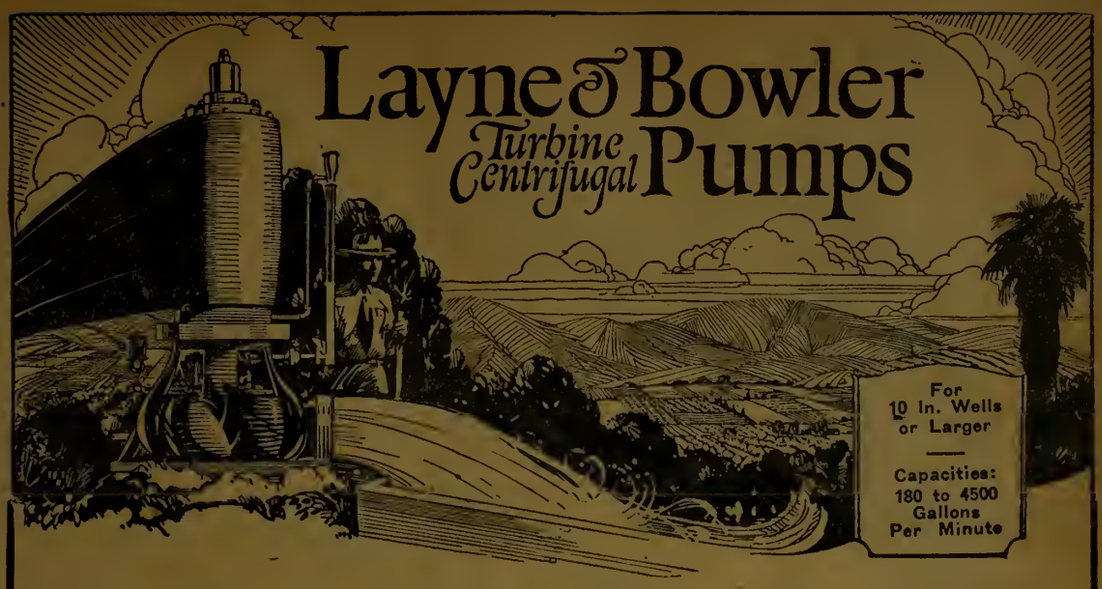
## Sunscald Prevention

SUNSCALD of fruit trees usually is associated with the summer months and the average person would scarcely think of preparing the trees during the winter to withstand the hot sun of the following summer.

Yet this is just what the University of California Experiment Station advocates. "Whitewash the fruit trees in winter to withstand sunscald in summer" is the advice of the University.

Good whitewash may be made of [illegible] pounds of quick lime, two pounds sulphur and one-half pound salt. Slake the lime with water and stir in the sulphur and salt so that they may be acted upon by the heat of the slaking lime. Dilute with water to make a good wash.

**Only One Regret**—"I have tried a [illegible] California farm papers, but [illegible] FARM is the most [illegible], helpful and interesting [illegible] Mrs. C. Rothiveler, Newman, Cal. "I cannot do without it, and only regret is that it is not a [illegible]."


# Choice of Leading Water Producers

Millions upon millions of gallons of water are produced every day in the year by Layne & Bowler Pumps. It is interesting to note that the best known ranch and development companies and the most successful ranchers in every pumping district in California and Arizona are now operating these pumps. We here list just a few of the 6,000 or more Layne & Bowler Pump owners:

| | | Number of Pumps. |
|---|---|---|
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| Boston Land Co. | Henrietta | 34 |
| Southwest Cotton Co. | Avondale, Ariz. | 32 |
| R. P. Davie | Marinette, Ariz. | 31 |
| Tuscon Farms Co. | Sahnarita, Ariz. | 22 |
| James Ranch | San Joaquin, Cal. | 22 |
| Bastanchury Ranch | Fullerton | 15 |
| Inspiration Consolidated Copper Co. | Miami, Ariz. | 11 |
| Irvine Co. | Tustin | 11 |
| Lerdo Land Co. | Lerdo | 8 |
| Los Alamitos Sugar Co. | Los Alamitos | 8 |
| Alameda Sugar Co. | Woodland | 7 |
| Salinas Land Co. | King City | 6 |
| Janss Investment Co. | Lankershim | 6 |
| Santa Ana Valley Irrig. Co. | Santa Ana | 6 |
| Chino Land & Water Co. | Chino | 5 |
| Union Sugar Co. | Guadalupe | 5 |
| Paul E. Walker | Hemet | 5 |
| C. W. Gates | Los Angeles | 5 |
| Western Water Co. | Taft | 5 |
| San Joaquin Fruit Co. | Tustin | 5 |
| Central Forest Co. | Artois | 4 |
| American Beet Sugar Co. | Chino | 4 |
| H. L. Bissell | Dixon | 4 |
| Montana Land Co. | Hynes | 4 |
| Goodyear Tire & Rubber Co. | Los Angeles | 4 |
| A. J. Russell | Pond | 4 |
| Sunnyslope Water Co. | San Gabriel | 4 |
| Santa Anita Ranch | Santa Anita | 4 |
| So. L. A. Water & Land Co. | Vernon | 4 |
| J. R. McKinney | Wasco | 4 |
| Anaheim Sugar Co. | Anaheim | 3 |
| Temescal Water Co. | Corona | 3 |
| El Segundo Land & Improvement Co. | El Segundo | 3 |
| Laguna Land & Water Co. | Laguna | 3 |
| Yamada & Tawa | Los Angeles | 3 |
| Bicknell Estate | Montebello | 3 |
| People's Water Co. | Palms | 3 |
| J. A. Graves | Pasadena | 3 |
| F. C. Fairbanks | Redlands | 3 |
| J. B. Van Nuys | San Gabriel | 3 |
| J. P. Sweeney | Wasco | 3 |
| J. H. Maxey | Yuma, Ariz. | 3 |

### Construction Notes

No valves or packing glands below surface of ground.

No water balances below surface of ground.

No pit necessary.

No priming necessary.

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Send me one pair of army style work shoes. I will pay the postman only $2.98 on delivery. If for any reason whatsoever I am not perfectly satisfied, I will return them at your expense and you will refund my money at once. *I risk nothing.* Size.....

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Los Angeles, Cal.


# How Long Will the Average Tractor Last?

"IT ALL depends", this is a safe way to answer many questions. And the life of the tractor depends upon various considerations. That the average tractor is a longer-lived machine than most persons realize, however, is indicated by investigations conducted in various sections of the country.

One factor in the life of a machine is the number of hours it is used each year. In the colder sections of the country about 500 hours seems to be the annual average. In California, probably this figure would be considerably increased. But based on a 500-hour working year, seven years has been determined upon as the useful period for an average tractor.

This does not mean that some machines will not give service for longer periods. Many instances are cited of tractors which have been at work for eight, ten and twelve years. A South Carolina farmer reported recently that he had used his tractor for 15 years, threshing, plowing, working the land, sawing wood and doing many odd jobs. The repair expense, he adds, has been very small in comparison with the work accomplished.

One California general farmer tells of nine years of service, with a repair expense of only $200. He has run the machine entirely himself, taken exceptional care of it and given especial attention to lubrication and adjustment.

Agricultural engineers have figured out a depreciation table that should assist any tractor-owner with his bookkeeping. Reference to the table shows that depreciation should be figured on the basis of number of hours worked.

After all, depreciation and life of service depend almost altogether on the care given the tractor. The ten-year owner usually is one who affords his tractor the same attention he would give his horses. Regular cleaning and prompt investigation when anything "goes wrong" are part of his program. Overloading is avoided. Adjustments are made promptly. Will your tractor give many years of satisfaction or will it go to pieces in a short time? "It all depends."

*The Life of the Tractor Depends Largely Upon the Driver.*

| First cost of tractor | $500 | $750 | $1,000 | $1,250 | $1,500 | $1,750 | $2,000 |
|---|---|---|---|---|---|---|---|
| WORKING LIFE OF TRACTOR. | | | DEPRECIATION CHARGE PER HOUR. | | | | |
| 1,000 hours | .50 | .75 | 1.00 | 1.25 | 1.50 | 1.85 | 2.00 |
| 2,000 hours | .25 | .38 | .50 | .63 | .75 | .88 | 1.00 |
| 3,000 hours | .17 | 25 | .33 | .42 | .50 | .58 | .67 |
| 4,000 hours | .13 | .18 | .25 | 31 | .38 | .44 | .50 |
| 5,000 hours | .10 | 15 | .20 | .25 | .30 | .35 | .40 |
| 6,000 hours | .08 | .13 | .17 | .21 | .25 | .29 | .33 |

## Professor Christie—Why We Must Dehydrate Apricots

(Continued from Page 23)

the sulphur-house to the evaporator, where they remain until dry and are then unloaded and refilled; in sun-drying, on the other hand, the trays are moved considerable distances to the dry-yard, spread out individually, later stacked and finally collected for unloading.

In an efficient dehydrator the labor saving largely would offset the cost of fuel and power. At present costs for dehydrators as compared with the value of land, trays, etc., needed for sun-drying, the "overhead" expenses of a dehydrator need be very little greater than for a dry-yard.

The dehydrated apricots were delivered to the Winters packing house of the California Prune and Apricot Growers, Incorporated. The product was accepted as second grade or "Growers' Brand" and received 1½ cents per pound less than the first grade or "Sunsweet Standard." The main reason for this discrimination was the lighter, more uneven color of the dehydrated fruit. Fruit from the same trees dried in the sun was considered first quality. When orchard-run apricots, ranging from soft ripe to hard green fruit, are sun dried, practically all the fruit acquires a uniform orange color, whereas the same fruit dehydrated retains its original color. This "coloring up" of the fruit was shown to be due to direct sunlight, since green or yellow apricots dried "in the stack" without exposure to direct sunlight gave a final product very similar to the dehydrated.

In other words, only fully ripened fruit should be dehydrated, for green or light yellow apricots invariably will reveal their identity in the finished product. The apricots used in these experiments were neither picked nor graded for ripeness; consequently, the unripe apricots caused the dehydrated product to be inferior in color to the sun-dried.

The packing house superintendent mainly is concerned with the color of the dried product when packed and considers any product inferior which does not equal the color standards of the best sun-dried fruit.

Cooking tests were made in which the dehydrated and sun-dried fruit from the same trees was compared as stewed fruit and in pies. Unbiased opinion pronounced the dehydrated fruit superior because it was cleaner and retained more of the fresh apricot flavor, while the individual pieces did not become mushy and lose their shape when cooked.

The experiments indicate that high quality dehydrated apricots may profitably be produced in an air-blast tunnel dehydrator, provided only uniformly ripened fruit (sulphured before drying) is used. The sterile, uniformly dried product may be packed immediately in suitable containers, such as paper-lined cartons. The usual sweating, washing and resulphuring necessary in packing sun-dried fruit may be entirely dispensed with, resulting in a saving of time and money. It is not, therefore, unduly optimistic to believe that dehydrated apricots, dried clean and kept clean, may, if properly advertised, considerably increase the demand for California dried apricots in the United States.

Drawn for ORCHARD and FARM by [illegible]

*The Garden Truck Has the Right-of-Way.*

# Deciduous Fruit Pollination

(Continued from Page 31)

| | |
|---|---|
| Eureka | Ne Plus Ultra |
| Golden State | Nonpareil |
| Harriott | Peerless |
| I. X. L. | Reams |
| Jordan | Texas |

Some varieties of almonds are inter-sterile The following varieties, have proved to be inter-sterile:

Nonpareil and I. X. L.
Languedoc and Texas

Almonds may be classed as early or late bloomers, as follows:

**EARLY BLOOMERS**

| | |
|---|---|
| Big White Flat | Lewelling |
| California | Ne Plus Ultra |
| Harriott | Nonpareil |
| I. X. L. | Peerless |
| Jordan | Princess |
| King | Silver Shell |
| Klondike | |

**LATE BLOOMERS**

| | |
|---|---|
| Dickinson | Nonpareil |
| Drake | Reams |
| Eureka | Sellers |
| Golden State | Texas |
| Languedoc | |

With the exception of the above noted cases of inter-sterility, any variety in either of the above lists may be used in most instances as a satisfactory pollinator for any other variety in the same list.

### Cherry Pollination.

The following sweet cherry varieties are self-sterile under California conditions:

| | |
|---|---|
| Napoleon (Royal Ann) | Black Tartarian |
| Pontaic | Burbank |
| Rockport | Chapman |
| Lambert | Early Purple |
| Black Heart | Bing |
| Black Republican | Advance |

Some varieties of sweet cherry are inter-sterile. The following varieties under certain conditions, have proved to be inter-sterile:

Bing, Lambert and Napoleon
Pontiac and Black Tartarian
Rockport and Advance
Advance and Black Republican

Five distinct strains of Black Tartarian have been found in the Vaca Valley alone. Different strains of Black Tartarian have produced from zero to as high as 40 per cent set on Napoleon (same season, same trees). No entirely satisfactory pollenizer has as yet been determined for Napoleon. However, certain strains of Black Tartarian and Black Republican seem to yield, at least in some cases, satisfactory results. Experiments conducted in Oregon show that the long-stemmed Waterhouse variety is a fairly good pollenizer for Napoleon.

Sweet cherries may be classed as early or late bloomers, viz:

**EARLY BLOOMERS**

| | |
|---|---|
| Advance | Burbank |
| Black Heart | Chapman |
| Black Republican | Early Purple |
| Black Tartarian | |

**LATE BLOOMERS**

| | |
|---|---|
| Bing | Pontiac |
| Lambert | Rockport |
| Napoleon | |

Black Tartarian and Black Republican overlap enough for pollenizing varieties in second column. Chapman is the best pollenizer for Advance. Some strains of Black Tartarian and Pontiac are most satisfactory for Bing. Early Purple and Black Tartarian are satisfactory for Black Heart, Napoleon, Rockport and Black Tartarian. Black Heart, Black Tartarian and Chapman are satisfactory for Burbank. Advance, Black Heart, Black Tartarian and Burbank will pollenize Chapman. Advance and Black Heart best pollenizers for Early Purple. Black Republican, Pontiac and Black Tartarian best for Lambert. Lambert and Napoleon are best for Pontiac. Burbank and Black Republican best for Rockport.

### Peaches and Apricots.

No extensive pollination investigations have been carried out under California conditions with either the peach or apricot. Preliminary studies, however, together with the experience of practical growers seem to point to the following conclusions:

*All varieties of peaches, with the possible exception of two or three cling-stone varieties, are probably self-fertile. Apricot varieties appear to be self-fertile with the possible exception of the Moorpark and Alameda Hemiskirks.*

### Plum Pollination.

Practically all Japanese plums tested have proved to be self-sterile. Climax and Methley are probably exceptions to this rule. The varieties which have proved to be self-sterile are:

| | |
|---|---|
| Abundance | Kelsey |
| Apex | Prize |
| Beauty | Santa Rosa |
| Burbank | Satsuma |
| Combination | Sultan |
| Formosa | Upright |
| Gaviota | Wickson |

The early Japanese varieties, notably the Formosa, are deficient pollen producers. All Japanese varieties blossoming at approximately the same time inter-pollinate fairly well. In addition, Tragedy proved to be an efficient pollenizer for the late blooming Japanese varieties.

**EARLY BLOOMERS**

| | |
|---|---|
| Combination | Santa Rosa |
| Formosa | Beauty |
| Kelsey | Upright |
| Satsuma | |

**LATE BLOOMERS**

| | |
|---|---|
| Abundance | Gaviota |
| Burbank | Climax |
| Prize | Sultan |
| Apex | Wickson |
| Methley | |

All European varieties tested seemed to be abundant pollen producers and to cross-pollinate one another effectively. There seems to be no general tendency among the European varieties with regard to self-sterility. Following are the divisions:

**SELF-STERILE**

| | |
|---|---|
| Clyman | President |
| Grand Duke | Robe de Sergeant |
| Imperial | Standard |
| Pond | Washington |

**SELF-FERTILE**

| | |
|---|---|
| Diamond | Sugar |
| French | Yellow Egg |
| Giant | |

French and Sugar prunes have a distinct tendency towards self-fertility; nevertheless their yield may be increased, especially in certain years, if inter-planting is practiced.

**EARLY BLOOMERS**

| | |
|---|---|
| Clyman | Tragedy |

**MID-SEASON**

| | |
|---|---|
| Grand Duke | Sugar |
| French | Diamond |
| Imperial | Standard |
| Robe de Sergeant | |

**LATE BLOOMERS**

| | |
|---|---|
| Giant | Yellow Egg |
| Washington | President |

## Successful Alfalfa Growing

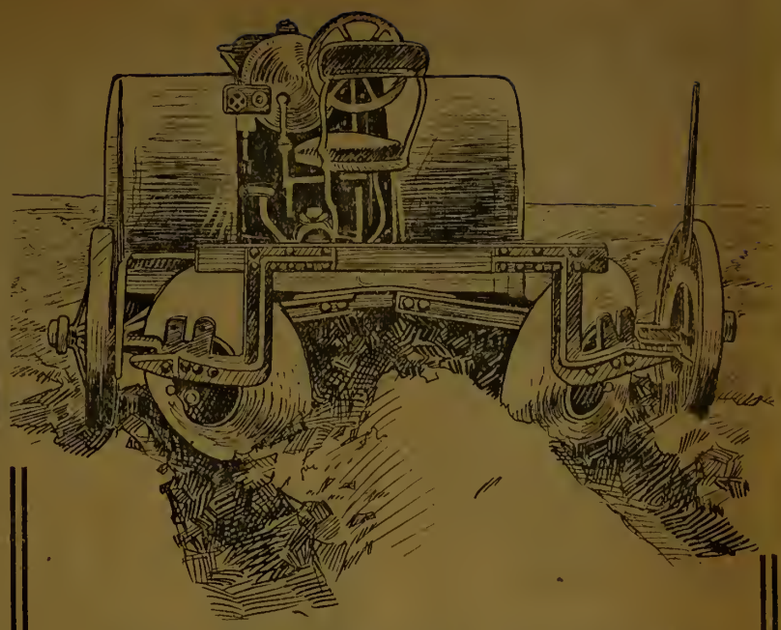
(Continued from Page 8)

[illegible] good results while fresh. At the present price of the cultures, the method is rather expensive, but it is easy and eliminates the danger of introducing weed-seed or [illegible] organisms into the new field

During the last two or three years much has been written regarding the beneficial effect of sulphur on alfalfa, but it is by [illegible] not [illegible]ry on all soils.

The stimulating effect of gypsum under [illegible] has long been recognized, [illegible] of our present knowledge [illegible] its action is probably due [illegible] it contains, since the [illegible] and gypsum is ordinarily [illegible] the same conditions. [illegible] of these materials is not [illegible]

Whether the sulphur in some of our soils is unavailable to the plant, or whether the materials act mainly in liberating other elements, or in the stimulation of bacterial action, is still undetermined. Unfortunately, there is no way to determine beforehand whether the growth of alfalfa will be stimulated by these materials or not. One can experiment, however. In some cases applications of 100 to 200 pounds per acre have nearly doubled the yield, while in many other cases no increase has been obtained. Before one goes to the expense of applying either sulphur or gypsum on a large area, they should be tried out on a few checks to determine whether or not they are needed.

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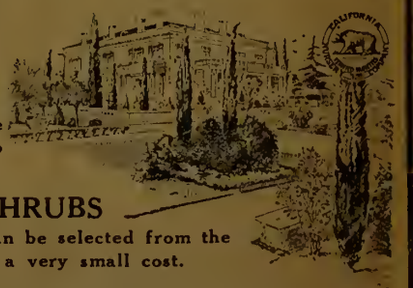

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Especially designed for hard ground; subsoil attachment breaks up the hard pan; furnished with power lift; 1 to 4 disc for field or orchard use. This plow conserves moisture—pulverizes the soil. Write for complete description. Call and see these plows when in the City.

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**An Appreciated Complaint**—"I have but one fault to find with Orchard and Farm, and that is, that it does not come often enough."—J. A. Mitchell, Calistoga, Calif.

RABBITS $6,000 YEARLY. Raise Furbearing Rabbits for us in your back yard, spare time. We furnish stock and pay $3.50 to $7.50 each for all you raise. SUNSET FUR CO., 507 Lankershim Bldg., Los Angeles, Cal.


## How to Keep Ants From Crawling Up Trees

MIX together thoroughly with a wooden paddle the following ingredients until of a uniform color and consistency:

Finely powdered flowers of sulphur, parts by weight ..... 1
Commercial treebanding (sticky) mixture, parts by weight ..... 6

The tree trunk first should be coated with melted paraffin, which will harden almost immediately. The mixture just referred to then should be applied over the paraffin in a band about five inches wide and about one-quarter inch thick.

Before the band is applied the tree should be pruned, so that the lowest branch is fully a foot above the ground, and all rubbish should be removed from beneath the tree and the soil cultivated to destroy grass and weeds.

# HELPFUL HINTS for THE HOUSEWIFE

Edited by Isabel Sinclair

Therefore let memory turn again to home,
Feel, as of old, the joy of drawing near.
—Jean Ingelow.

Dear Friends:

Although it is the shortest month, February, as the in-between period, offers the farm woman an opportunity to take inventory of her household, and to make plans for the spring activities, as well as the busy summer to come.

**Hints for February**

It is especially a good month in which to complete little odd jobs about the house, that for some reason are always being cast aside for things of seemingly greater importance. Many housewives plan to do their plain sewing, including aprons, housedresses and underwear, in February. There is a certain satisfaction in knowing that the essential and, as one woman said, "uninteresting," things are made and ready for use, allowing freedom from the sewing machine during the hot summer days, so filled with outside duties.

**Time to "Brighten Up"**

At the thought of the warm spring weather soon to come, one naturally thinks also of making the home reflect the joyous sunshine and freshness of out-of-doors. Why not begin to plan now? There are many inexpensive little touches that will give a new, bright and cheery aspect to the home. A few coats of light enamel paint will work wonders in brightening up a dark room which may not receive much sunlight, as well as the house in general. Many farm women are doing away entirely with the dark woodworks, preferring the creams, grays and whites which are easy to keep clean, and which also make a room so cheerful and liveable.

A bit of bright cretonne or chintz to recover the faded couch cushions and used as draperies at the windows and doors, a rearrangement of the furniture, which always makes a room look different, with the addition of a new piece or perhaps a restful reading lamp, will do much towards the general scheme of making the home "A thing of beauty and a joy forever."

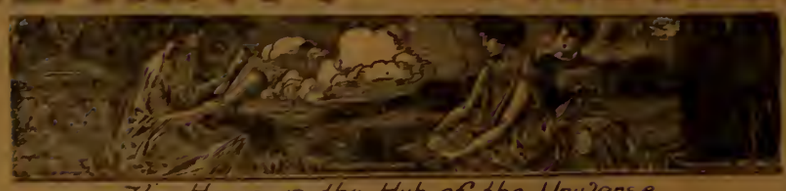
**Dual-Purpose Plants**

Since we are making renovation plans, why not step outside and give the flower garden and the yard the benefit of a little thought, and thus make the exterior a fitting approach to the home? In addition to shrubs and flowers, a few hardy vines trained over some of the outbuildings and, of course, the porches not only beautify them but also serve as a means of supply for the table. A novelty with which no doubt many are acquainted is the so-called New Guinea Butter Bean, the gourds of which in some instances grow to a great length. These are delicious if picked when about 16 inches long, or smaller, while the "fuzzy" growth is yet discernible. Cut into three-fourth inch cubes, bring to a boil, pour off the water once or twice, season well with pepper, salt and butter. You will be surprised at the flavor of this dish. There is also the chayote vine and the monstrous lima bean, which, in addition to producing valuable vegetables, supply shade in profusion.

As the home is the center of affections for the family, its beauty and peace make it a haven at the end of the day, and it should be a place worthy of honest endeavor and labor.

Sincerely,

Isabel Sinclair



*The Home is the Hub of the Universe*

## How to Use Sour Milk in Cooking

By Mrs. Belle De Graf

Director, Domestic Science Department, Sperry Flour Company.

***Written Especially for Orchard and Farm***

At the present price of milk, the careful housewife undoubtedly will plan so that there will be no oversupply to accumulate and become sour. Occasionally, however, she will have a quart or so of sour milk. And there are many ways economically to use it.

Mrs. De Graf

Sour milk cookery is very satisfactory, as the souring process affects the substances in the milk, making all flour mixtures more tender and palatable than those made with sweet milk. Buttermilk can be purchased for about half the price of sweet milk, and may be substituted for either sweet or sour milk with equally good results, providing baking soda is used to neutralize the acid, in order to produce the effervescence which makes the dough light.

Sour milk, or butter milk, can be used in any formula calling for sweet milk, although frequently its use is condemned because of failure to secure satisfactory results, usually caused by the use of too much baking soda. Thick sour milk does not vary a great deal in acidity. One-half level teaspoon of soda to each half pint measuring cup of sour milk will neutralize the acid, and if the soda is measured carefully the flour mixture will never turn yellow or taste unpleasantly of it.

If more soda is needed, the milk is too old for use and should be discarded. Mixtures made of sour milk, with the addition of soda in the proportion given, will be lighter if an equal quantity of baking powder is added also, this combination producing the lightness necessary without altering the tenderness and better flavor produced by the sour milk.

When possible, sift the soda with the flour. Do not dissolve baking soda in either sour milk or molasses as this releases the gas which leavens the mixture. When the soda comes in contact with the acid the mixture immediately becomes foamy, and all the gas which should be used to make the mixture light is lost.

It is true that older recipes suggest dissolving the soda in the liquid, but the process then was not as perfect as at present, and the product was coarser and apt to contain small lumps, which if not thoroughly dissolved, made the mixture unpalatable.

Because the gas is released at once when the soda and acid are combined, the batter or dough should be baked as soon as the ingredients are mixed. The thinner the mixture, the more gas will be lost by standing, for example, a griddle cake batter made of sour milk should be baked at once for the best results. If necessary for the batter to stand, it should be beaten well to incorporate air so that the mixture may be leavened.

A small amount of baking powder (in proportion to the amount of batter) may be added to increase the lightness when the batter has stood for some time.

In the following recipes all measurements are level and the flour is sifted once before measuring. One-half pint measure-cup is used.

### NUT SANDWICH BREAD

| | |
|---|---|
| 1½ cups flour | 1 teaspoon salt |
| 2 cups graham flour | ½ cup chopped walnuts |
| ½ cup corn meal | [illegible] |
| ½ cup brown sugar | 1 cup seedless raisins |
| 2 teaspoons baking powder | ½ cup molasses |
| 1 teaspoon soda | 2 cups sour milk or buttermilk |

Mix and sift dry ingredients, but do not discard bran from graham flour which will not go through the sieve. Add remainder of materials in order named. Put into two small, well-greased bread pans, allow to stand fifteen minutes, then bake about forty minutes in a moderate oven.

This makes an excellent sandwich bread and keeps well.

As this mixture is baked in a loaf form it is necessary to use additional leavening. The dough is stiff and the bread will be lighter if the loaf stands to allow some of the gas to form before being put into the oven.

### SOUTHERN CORN BREAD OR MUFFINS

| | |
|---|---|
| 2 cups corn meal | 2 tablespoons melted shortening |
| 2 cups sour or buttermilk | 2 eggs |
| 2 teaspoons salt | 1 teaspoon soda dissolved in 1 tablespoon cold water |
| 2 tablespoons sugar | |

Put milk, corn meal, salt, sugar and

(Continued on Page 41)

### Daddy's Best Christmas Gift

*Mother, can't you get owoy?*
*We'd like to go to the matinee!*
*Let's take the car, now, Mummsie, do—*
*You know we LOVE to drive with you.*

*The show is fine, so Julio says*
*(And you con drive to town, I guess).*
*Oh, goody, Dick, she says we'll go,*
*And I con wear my new pink bow.*

*You know, things haven't been the some*
*Since Moma's 'lectric washer come.*
*When Daddy stopped that wash-doy fuss*
*HE SURELY DID A LOT FOR US!*

*—Amy Virginia Williams.*

(Written for ORCHARD and FARM. Copyright.)

### Practical Ideas

To remove iron rust from white goods saturate the spot with lemon juice and cover with salt. Place in the sun until thoroughly dry and then rinse in cold water and the stain will be entirely gone.

Drawers that stick will work smoothly if they are pulled out and the edges rubbed with soap.

Strong powdered cloves make an excellent "ant chaser."—George Fitzgerald, Los Angeles, Cal. (H. H.)

### Canning Hints

When fruit is canned the natural flavor and color are retained much better if the fruit is dropped into the boiling syrup, then canned as quickly as possible after it boils up again.

If a silver knife is placed in the jar before filling it with the fruit the danger from breakage is practically eliminated. (Caution: In filling two-quart jars do not forget to remove the knife before sealing.)

Put a little warm water in emptied jelly glasses and in turn pour this rinse water into the vinegar jar, thereby replenishing your vinegar supply.—Mrs. M. A. Sawyer, Claremont, Cal. (H. H.)

### Baking Suggestions

I found the following idea a great help in securing good bread, which I bake myself. (We were so situated that I could not keep it warm enough during the night to have a good sponge in the morning.) Fill a box 18x18x24 with excelsior, leaving a hole large enough so that a three-gallon stone jar will fit into it.

Fit canvas snugly over the excelsior to hold it in place and in the evening warm the jar and fill well, placing the sponge in it. Place it in the "nest" and cover with a pad, made to fit the top of the box. It is well to warm the pad also in order to retain the heat better. In the morning the same process should be repeated and the result should be a good batch of bread.—Mrs. J. H. Getz, Gardena, Cal. (H. H.)

### Hints for Cooking Meat

When cooking corned beef, parboil it with one level teaspoonful of baking soda. This makes it delicious and tender, and will lessen the time of cooking about an hour and a half. All corned meats should have the first water drained off. Corned beef, boiled ham and all large pieces of meat should be allowed to cool in the water in which they are boiled, which keeps them moist; they are delicious sliced cold.

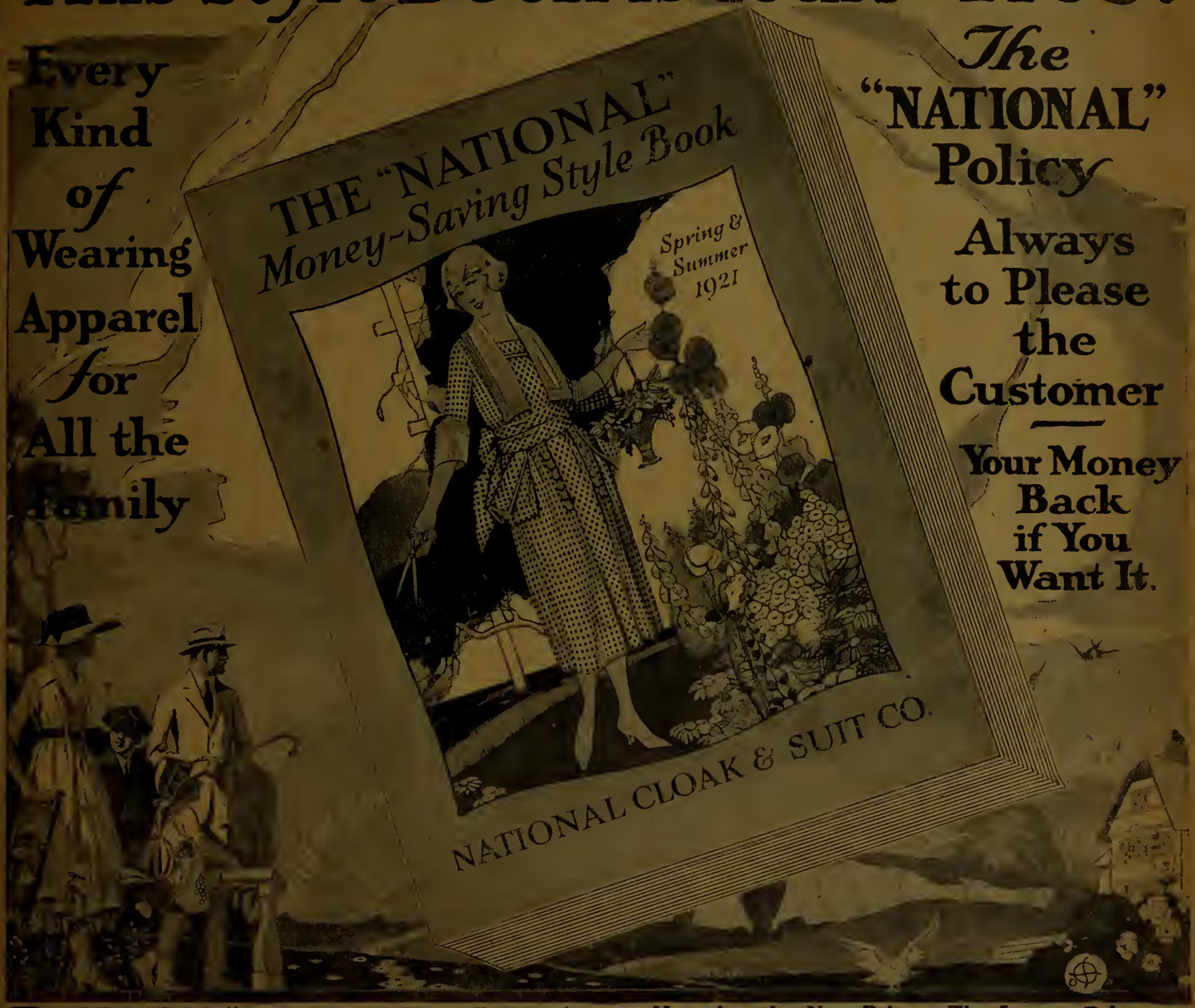
Boil roasts for 15 minutes on top of stove while the oven is heating. This saves fuel and takes less time, and the roast will not be so dry. The water can be used for gravy. Baked potatoes and puddings also can be started in this way. Many successful cooks boil turkeys before roasting.—M. Simmen, San Francisco, Cal. (H. H.)

### Clothes Wringer Hint

New rollers are expensive and if the following method is used a satisfactory substitute will result.

Cut strong white cloth, or unbleached muslin, the right size, allowing the material to lap over and cover the rollers, sewing the cloth together with long, overcasting stitches.—Mrs. M. Merkel. (H.)

# This Style Book is Yours—Free!




READERS of "Orchard and Farm," here is a message of Lower Prices, of Better Styles and more Lasting Satisfaction than you have known before.

The "NATIONAL" Money-Saving Style Book pictured here, offers you complete the best New York Styles for Spring in everything for women's, men's and children's wear and at lowest prices.

To have this book in your home is to have a price standard, a standard of values. To study it is to know the new styles and the new prices—the lowest prices for Spring.

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# PRETTY COSTUMES

*Selected by Isabel Sinclair.*

*These costumes are all simple and can easily be made by the home dressmaker from the patterns provided by this department. To secure any of the patterns send 15 cents in silver or stamps to Pattern Department, Orchard and Farm, 1111 South Broadway Los Angeles. (It has been necessary, because of rising wholesale costs, to increase the price of our patterns but they still sell at from 10 to 20 cents less than those obtainable at the stores.)*

**3486-3381—Lady's Costume**

Waist 3486 cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Skirt 3381 cut in 6 sizes: 24, 26, 28, 30, 32 and 34 inches waist measure. Width of skirt at lower edge is 1¾ yards. A medium size will require 9 yards of 38-inch material. Two separate patterns, 15 cents for each pattern.

**3490—Child's Dress**

Cut in 4 sizes: 1, 2, 4 and 6 years. A 2-year size will require 2½ yards of 36-inch material. Price 15 cents.

**3188—Lady's Waist**

Cut in 7 sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 2⅝ yards of 44-inch material. Price 15 cents.

**3482—A Smart Dress**

Cut in 3 sizes: 16, 18 and 20 years. Size 16 requires 3¾ yards of 44-inch material. Width of skirt at lower edge is about 2 yards. Price 15 cents.

**3485—Lady's Apron**

Cut in 4 sizes: Small, 32-34; medium, 36-38; large, 40-42; extra large, 44-46 inches bust measure. A medium size requires 7¼ yards of 27-inch material. Width of skirt at lower edge is about 2 yards. Price 15 cents.

**3479—Lady's Undergarment**

Cut in 4 sizes: Small, 32-34; medium, 36-38; large, 40-42, and extra large, 44-46 inches bust measure. Medium size requires 3⅝ yards of 36-inch material or 3⅛ yards without the yoke. Price 15 cents.

**3473—A Good School Costume**

Cut in 4 sizes: 8, 10, 12 and 14 years. A 10-year size requires 2⅛ yards of 42-inch material for the skirt and 2⅝ yards of 42-inch for the blouse. Price 15 cents.

**2930—Girl's Dress**

Cut in 4 sizes 8, 10, 12 and 14 years. Size 12 requires 3⅜ yards of 44 inch material for the dress and one yard for the plastron. Price 15 cents.

**3032—Lady's House Dress**

Cut in 7 sizes 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Size 38 requires 5⅝ yards of 36 inch material. Width of dress at lower edge is about 2 yards. Price 15 cents.

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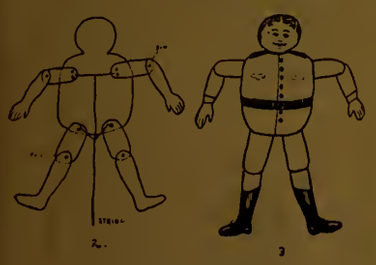
### My Dancing Man

FROM heavy cardboard cut a figure like illustration 1, making it any size desired. Next cut out the arms and legs, each in two separate pieces, which will allow them to be jointed at the "elbow" and "knee." Fasten together with pins (Fig. 2), attaching string to the arms and legs as illustrated. Pull the string and the arms and legs will move. With water color paints or crayons this man may be "dressed up" in any style desired.—Charles Schottland, Los Angeles, Cal.

1.



### A Scrap Book

LOTS of boys and girls have scrap books, but I wonder if they made a war-time scrap book? I made mine out of an old book containing about 50 pages, and pasted an appropriate picture on the cover. Whenever I found a war picture, cartoon, poem or story that appealed to me I pasted it in my book I derive a great deal of pleasure from my book now, and when my friends come over they always like to look at it.

The same idea could be followed now in making a scrap book of certain holidays, or of one's school days, pasting in pictures taken at school, or on picnics, parties and certain occasions; stories you may have written, special examination papers, and so on until graduation. It is lots of fun to make a scrap book and will afford more pleasure in the days to come.—Bernice Carlson, Madera, Cal.

**DIFFERENT**

I thought I hated school,
Until I had the mumps,
Now I know I was a fool,
And seven kinds of chumps.

I'd surely give a lot
If NOW could just be THEN,
And I could save this cot,
And be back in school again.

### Train Your Dog

IT IS so easy to teach a dog tricks that every boy or girl should take advantage of the intelligence of the pup. One of the tricks most readily learned is to "speak." When the dog is hungry, tease him with a piece of meat held by holding it above his head. He will become so excited that he will bark. Immediately give him the piece of meat. Do this a few times, saying "Speak" at the time. Soon he will learn to bark when ever you say "Speak."

### Boy Poultry Raiser

"IF you succeed in small things, you stand a pretty good chance to make a go of big things." This seems to be the philosophy of Steven Strember, the champion poultry club boy of the State of Washington.

Steven is 16 years old and lives near Lynden, in Whatcom County. Last year he enrolled in garden club work and as a result of his efforts made a profit of $43.80.

This year he took up poultrying as his project and started with 386 hens. His record book of expense and profit shows a net gain of $1029.10 from this number of hens. This was entirely from the sale of eggs, the receipts running from $86.72 to $417.60 per month, while his expenses ranged from $31.90 to $155.27.

It is interesting to note that the average number of eggs laid by his hens during the year was 164 per hen, or a total of 4604 dozen. There are no boarders on his farm; every hen has to account for eggs produced.

In speaking of his success with the poultry club work during the past year, Steven says: "I do all the work alone, and use my own judgment in feeding and caring for them. I take care of 1000 baby chicks every spring and like the work very much. I intend to have over 600 chickens next year, for it is easy work when you like it, and it surely pays well."

*"Some Carrots"*

*Here is Kathryn Link, holding some big carrots raised on her father's farm. She says the rabbits love them. We asked her how a rabbit could get such an enormous carrot in his mouth and she laughed and said we ought to know rabbits don't eat them whole, but only nibble.*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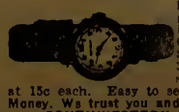

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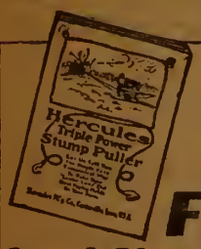


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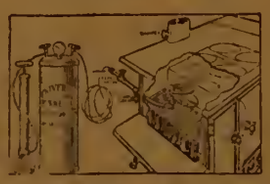

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# YOUR GARDEN of FLOWERS

*by Helen Temple*

> The flowers, the many flowers
> That all along the smiling valley grew,
> While the sun lay for hours
> Kissing from off their drooping lips the dew —Caroline Gilman.

ONE of our noted celebrities of America once said, "Heaven would not be complete without roses growing in profusion within its boundaries." If Heaven were to be found on earth, California, with its many favorable conditions for the growing of roses, surely would be chosen as the celestial spot. Roses in California are the champions of the floral world, both in quality and quantity. It is said that we have more than four thousand species.

Helen Temple

Roses should not be planted near trees of any kind, but should be set in a sunny situation where they are protected from the hard winds of any locality. The soil should not be too heavy. A loam soil, enriched with old cow-manure, is best. If your soil is very heavy, make it more friable by working in as much manure and old leaves or compost as available. Provide good drainage.

### Planting Roses

In our semi-tropical regions, roses may be planted the year around, but the spring planting is usually considered best. January, in Southern California, is really the beginning of spring. For each hundred miles north and northeast of the semi-tropical sections, planting should be a month later, until we reach Northern California, where the "true" spring months should be regarded as planting season for roses.

It is best for the beginner to purchase nursery-grown stock and to set it out as directed by the nurseryman of that locality.

When setting out the young plants, prune severely, and cut all uneven ends of roots with a sharp knife. The hole should be twice as large as occupied by the plant and a little coarse sand should be placed in the bottom of the hole, followed by a layer of pulverized soil. Firm the soil around the plant carefully and leave an inch or more of loose soil at the top, forming a shallow basin around the plant.

### Must Be Kept Moist

Thoroughly soak the plant and mulch with old manure and let it rest for three or four weeks, by which time the young plant should begin to show development. The soil now should be kept moist and well cultivated, and the old mulch should be mixed in about the roots. When the buds begin to form apply liquid manure once a week before irrigation, or provide another mulch of old manure. Soot, worked into the soil, or used in a liquid, adds to the gloss of both the leaves and flowers. Ground bone is the best commercial fertilizer, and should be worked into the soil thoroughly.

If the plants are given a rest after the first flowering season, two full crops of roses a year may be obtained. Do not irrigate for six weeks; cut out uneven growths and also cut back larger shoots, "evening up" the bush after this enforced rest. Begin irrigation again, following the same treatment as before, until the end of the second season of blooming is reached. In January or February prune severely and cut back all new canes to within about six inches of the old, removing all dead, weak and poor wood.

### Propagation of Roses

Propagate roses with cuttings made from vigorous, ripe canes of a year's growth. One cane usually will make about three cuttings, six or seven inches long. Use a sharp knife; scissors bruise the bark and cause decay. Strip the foliage and bury cuttings to a depth of at least four-fifths of their length in soil. It is best to start cuttings in a box of moist, sandy loam, setting them out in the permanent location in three months.

### Rose Diseases and Enemies

Aphis is one of the worst enemies of the rose. Syringe the bush with a solution made with a bar of laundry soap and a gallon of water, or use a strong spray of water. This latter method, if thorough, will knock the aphis from the plant.

Mildew is a fungous growth which is brought on by severe changes of weather or sprinkling the bush during the hot weather before it has lost the heat absorbed during the day. Sprinkle with a mixture of sulphur and slaked lime. Use Bordeaux mixture early in the spring and again just before the second blooming season. Bordeaux mixture may be used effectively for rust, which also is a fungous growth. For the rose beetle, which sometimes attacks the newly formed buds, causing them to drop off or die, spray with arsenate-of-lead.

### Varieties and Classes

Select roses best adapted to your particular climate and location. The tea roses are prized by many growers as they bloom very profusely through a long season, although susceptible to severe frosts. Hybrid-perpetuals are larger and hardier, and very fragrant. The Cherokees and Noisettes are climbers, and the Polyantha roses are the small clustered variety. However there are so many kinds of roses, both climbing and bush, that I cannot attempt to name them.

## February Work

FINISH up the pruning; turn over the soil, working fertilizer into it as deeply as possible. Fertilize the lawn by covering with old manure, sprinkling each day and stirring up the manure every three days. After two weeks of this, remove the remaining manure. If you cannot obtain manure which is free from weed and objectionable grass seed, it is best to use a commercial fertilizer.

In the interior and north coast regions, if danger of frost is past, set out all hardy plants and flowers. In the semi-tropical district plant pansies, Shasta daisies, verbenas, celosia, salvia, stocks, sweet-peas, chrysanthemums, calliopsis, geraniums, petunias, asters, carnations and antirrhinum.

In the South, bulbs should be hurried into the ground and lilies, cannas, agapanthus, caladiums, dahlias, tube-roses, gladioluses, amaryllis and iris should be set out. Start begonias in pots this month, using leaf-mold and sandy loam.

## Questions and Answers

My rose bushes have a white mold on them. What can I do to stop it?—J. W. F., Parkfield, Calif.

Spray with Bordeaux mixture early in the spring and again later. Sprinkle with sulphur. I advise a rather severe pruning if your bushes are old.

What makes the leaves of my poinsettia fall off? The blossoms are good.—Mrs. W. C. B., Monrovia, Calif.

Poinsettias often shed their leaves when exposed to cold or severe winds. Plants in the Shepherd gardens of Ventura were stripped of their leaves during a severe wind to which they were exposed, while those which were protected did not lose a leaf. Loss of leaves does not necessarily indicate disease.

Should chrysanthemums be cut to the ground after their blooming season is over? Should they be cut back two or three times before their blooming season?—Mrs. B. B., Arcadia, Calif.

Chrysanthemums should be cut to the ground after their blooming season, and should be cut back two or three times before their blooming season, the final cutting before the last of July or the first of August.

Valuable Requisite—"I would not want to consider farming without Orchard and Farm."—F. H. Pratt, Dundee, Calif.

# Sour Milk Cooking

(Continued from Page 36)

...tening into a double boiler and ... steam ten minutes, but no longer. ...move from fire, turn into mixing bowl, separate eggs and beat well, adding yolks to corn meal mixture, then folding in well-beaten white of eggs carefully. Add dissolved soda last, still folding, and bake either as muffins or in shallow pan, well-greased, using a hot oven.

If iron muffin pans are used, they should be heated before greasing. Heavy muffin pans will always produce a better muffin than tin.

This recipe produces a very moist corn bread, although not as light as one where some flour is used.

## SOUR MILK BISCUITS

| | |
|---|---|
| 2 cups flour | 2 tablespoons shortening |
| 1 teaspoon salt | 1 cup sour or buttermilk |
| 1 teaspoon soda | |
| 1 teaspoon baking powder | |

Mix and sift dry ingredients; work in shortening with knife or finger tips. Gradually add the liquid, mixing to a soft dough with a knife. Toss on a floured board, pat or roll lightly to one-half inch in thickness, cut with biscuit cutter, place in pan, brush over the top with either melted shortening or sweet milk. Bake in a hot oven twelve to fifteen minutes.

## BRAN MUFFINS

| | |
|---|---|
| 1 cup bran | ½ cup sour or buttermilk |
| ½ cup flour | 3 tablespoons molasses |
| ½ teaspoon salt | 1 tablespoon melted shortening |
| ½ teaspoon soda | |
| 1 teaspoon baking powder | |
| 1 well-beaten egg | |

Mix and sift flour, salt, soda and baking powder, then add the bran. Beat egg well, add milk and molasses, combine mixtures, beat well, add shortening. Drop in hot, well-greased muffin pans and bake in a medium oven twenty to thirty minutes.

These muffins are best when allowed to cool, split open, toasted, buttered, put together and served at once.

## RICE MUFFINS

| | |
|---|---|
| 1 cup flour | 1 egg beaten |
| ½ teaspoon salt | 1 cup milk |
| ⅛ cup sugar | 1 cup cooked rice |
| 4 teaspoons baking powder | 1 tablespoon melted shortening |

Sift first four ingredients; add milk to beaten egg, then cooked rice, dry ingredients and melted shortening. Beat until smooth and bake in well-greased heated muffin pans in a hot oven about twenty-five minutes.

## GINGER COOKIES

| | |
|---|---|
| ⅓ cup shortening | ¼ teaspoon soda |
| ½ cup brown sugar | 1 teaspoon baking powder |
| ⅛ cup molasses | ¼ teaspoon salt |
| 1 well-beaten egg | 1 teaspoon ginger |
| 1½ cups flour | ½ teaspoon cinnamon |
| ⅓ cup sour or buttermilk | |

Cream shortening; add sugar, beat well. Sift remaining dry ingredients. Add egg to creamed shortening and sugar, then add dry ingredients, molasses and liquid gradually, beating well. Drop from spoon on a greased pan, some distance apart, and bake in a moderate oven. These cookies spread while baking.

## BOSTON BROWN BREAD

| | |
|---|---|
| 1 cup graham flour | 1 teaspoon baking powder |
| 1 cup corn meal | 1 teaspoon soda |
| 1 cup rye flour or meal | ¾ cup molasses |
| 1 teaspoon salt | 2 cups of sour milk or buttermilk |

Sift dry ingredients, add molasses and milk. Put in two well-greased moulds with tight covers and steam one and one-half hours, keeping water constantly at boiling point.

One cup of seedless raisins may be added to this batter.

## SOUR CREAM SALAD DRESSING

Beat one cup sour cream until light, add one tablespoon each of vinegar and ...n juice, one spoon each of salt ... sugar, one teaspoon prepared mustard a... a dash of pepper. Beat ...ll until thick.

## LITTLE CHEESE CAKES

| | |
|---|---|
| ... cottage cheese | ½ cup sugar |
| ... | ¼ teaspoon nutmeg |
| | ½ cup seedless raisins |

Mix ingredients in order named. Line ... patty pans with pastry, fill with mixture and bake in a moderate oven.

## RICE GRIDDLE CAKES

| | |
|---|---|
| ... r | 1 teaspoon soda |
| ... t | 1 egg beaten |
| ... ar | 1¼ cups sour or buttermilk |
| ... b... | 1 cup cooked rice |

... dients; beat egg, add ... and add grad... ingredients beating ... at once on ... hot ...


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I have nothing but praise for my model No. 11 Kirstin; it is some puller. Am pulling stumps up to 2 ft. without powder; also blind maple 8 to 16 ins. Myself and boy pulled in 15 minutes a tree 150 ft. high and 22 inches at the base.—Wm. H. Jeffery, Goble, Oregon.

I am well satisfied with my model 11 Kirstin. I cleared three acres with it last fall. I have the hardest conditions imaginable—hard clay and large percentage of tamarack.—Lee R. Bilderback, Lost Creek, Wash.

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COCKERELS, White Leghorns from 240 to 280-egg hens mated to cocks of the 280 egg type. Bred for 17 years for vigor, heavy laying and standard requirements. Trapnested and Hoganized. McFarlane and Barron strains. Hatching eggs and chicks. A. Worel, R. D. 3, Napa, Cal.

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BABY chicks from my pure bred, heavy laying flock of S. C. White Leghorns, carefully selected for standard and laying qualities. Orders for spring delivery booked now at $15.00 per 100, $70.00 per 500. Write for particulars. Order early. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

WHITE LEGHORN BABY CHIX from heavy laying HOGANIZED stock. Safe arrival of full count, live, strong chix guaranteed. Price for April, May and June, $14 per 100. The Pioneer Hatchery, 418 Sixth St., Petaluma, Cal.

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Also fireless brooders in 100, 50 and 25-chick sizes. Pioneer hot water brooders in 200 and 100-chick sizes. Kresky brooder stoves, 500 to 1500-chick sizes. "Chic-Elec" electric hovers, 150 to 600-chick sizes. "Reliable" Blue Flame hovers, 100 to 500-chick sizes. Cycle hatchers, the best 50-egg incubator on the market. Poultry supplies, remedies, feeds, etc., always on hand.

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**35,000 EVERY WEEK**

We can supply baby chicks in any quantity and can handle single orders in 5000 lots of R. I. Reds, Barred Rocks, White Leghorns, Brown Leghorns and Anconas; and we will have a limited supply of Black Minorcas, White Minorcas, White Rocks, White Wyandottes, Indian Runner ducklings and Mammoth Bronze turkeys. All our chicks are hatched from selected eggs supplied from thoroughbred flocks owned by experienced breeders who have been connected with us since we first started in business fifteen years ago. Send for price lists and catalogues and place your order soon to avoid disappointment on delivery. Finest incubator, brooder and baby chick display in the city. Visitors welcome at all times.

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"WORLD'S LARGEST BABY CHICK HATCHERS."

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**Pullet Flock Average 221 Eggs.**

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[illegible] Leghorn baby chicks booked for [illegible] Straight Tancred strain. Excel[illegible] 35 years a breeder Henry Tar[illegible]ing Cal

[illegible] Kellerstrass White Orpington [illegible] also eggs for hatching Mrs. [illegible] St San Diego, Cal.

[illegible] to-Lay" trapnested [illegible] JANUARY CHICKS. Fair[illegible] Farm, Fairmead, Cal.

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Early hatched chicks are the best always. They are stronger, much easier to raise than late chicks, mature and lay earlier, develop into larger and better birds. We are now booking orders for early hatched chicks. Do not fail to place your order in time for the early hatches. Several varieties, from our own breeding pens. Circular sent upon request. Beresford Poultry Farms, San Mateo, Calif.

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## POULTRY

MISSION HATCHERY
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WHITE LEGHORNS. A fine breeding flock, closely culled and hoganized. Heavy laying and hardy strain, large lots in February and early March, all booked up after that.

BUFF AND BROWN LEGHORNS, two carefully mated flocks, hardy and fine layers, on free range. Beauties as well as egg machines. Any quantity up to 1000 lots.

R. I. REDS, BARRED ROCKS, WHITE ROCKS. The cream of the meat breeds. We have them, large or small lots, and of a quality that means eggs, size, hardiness and looks.

BLACK MINORCAS. The big white egg and lots of them breed. Our breeding flock is on free range and knows how to fill the egg cases. Our circular and letter on early chicks is free.

For baby chicks, hatching eggs and good service.
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SPECIAL DELIVERY BABY CHICKS

We have the following varieties of thoroughbred chicks every week: White Leghorns, Anconas, R. I. Reds, Extra Fancy Dark R. I. Reds and Barred Rocks. All chicks are from carefully selected eggs and rigidly culled flocks.

This year all chicks are sent by Parcel Post Special Delivery, thus delivering at your door chicks in the best possible condition and in the shortest length of time. You should send for price list and put your orders in early.
ORANGE COUNTY HATCHERY, Harold C. Hebard, Prop. Santa Ana, Calif.

WHY

Because they are properly hatched and handled and we can supply chicks
EVERY DAY
—We guarantee a full count of live chicks at destination on lots of 25 or more.
—Poultry—all breeds. Send for Price List.
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25 TO 5000
PARCEL POST or EXPRESS
FULL COUNT SAFE DELIVERY
GUARANTEED Selected, heavy, laying HOGANIZED MacFarlane, Tom Barron, WHITE LEGHORNS, Anconas, Barred Rocks, Rhode Islands. Minorcas, Buff, Brown Leghorns. ORDER EARLY. Write for prices. Doke Hatchery Established 1908. 625 So. Spring St., Los Angeles, Cal.

SLY'S OLD MISSION STRAIN RHODE ISLAND REDS. My customers won highest honors at various California shows last season. See testimonials in new catalogue now ready. Six ideal matings. Hatching eggs at reasonable prices. NO BABY CHICKS. A. G. Sly, 1642 J Middleton Place, Los Angeles, Cal.

**BABY CHICKS**
S. C. WHITE LEGHORNS bred to lay. From best stock ever raised on Farm. February delivery $20. After March 1st, $15 per 100.
HOPLAND STOCK FARM,
Hopland, Cal.

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CORRECTLY hatched chicks, from carefully selected hens. Safe delivery guaranteed. White Leghorns, Anconas, Rhode Island Reds, Black Minorcas and Blue Andalusians. Write for prices. The White Leghorn Hatchery, 951 East Second st., Pomona, Cal.

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BABY CHIX
RHODE ISLAND REDS, Black Minorcas, from thoroughbred stock, on free range, which means strong chix. Any number, reasonable price. Denton Poultry Yards, Campbell, Cal.

## POULTRY

**BABY CHICKS**
**The Kind That Live**

Our baby chicks are the best that money can buy. Be satisfied with no other. All electrically hatched. We handle all varieties at all times from the best selected stock for egg production and true type birds.

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By instructing you how to raise baby chicks and for $5.00 will send you a box containing the entire equipment, food included, to raise 100 chicks for three weeks with the least possible loss.
Write us today.

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LAST 50 Eggs Measure the Profits. Our 180-290-egg strain Leghorns, Anconas, Reds, Rocks, Minorcas, Wyandottes, Orpingtons, Andalusians (ducks, turkeys), often clear customers $5 annually. Largest southern shippers of CHICKS ELECTRICALLY HATCHED. Price always reasonable; booked for open date. Hundreds satisfied customers repeat orders often. Proof, valuable information free. SURPLUS PULLETS, HENS, MALES AT BARGAIN. Write (am rarely home), W. Beeson, Pasadena, Calif.

SICILIAN BUTTERCUPS. The coming breed, are making friends everywhere. Profitable to keep, pretty to look at, tame to handle. Too busy laying to sit. Cockerels, settings. Send for mating list and descriptive circular.
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Box 287, Sawtelle, Calif.

BABY CHICKS.
From my heavy laying strain of pure blood White Leghorns, males, from trapnested hens of egg records. 250 eggs per year and over. Also Silver Campines, Brown Leghorns, Anconas. Oak Knoll Poultry Ranch, T. E. Blake, Santa Cruz, Cal.

WHITE Leghorns—Hatching eggs our specialty. Produced right, selected right, shipped right. 100 per cent fertility guaranteed. No better stock in the west. Prices very reasonable. No chicks. Curtis White Leghorn Ranch, R-1, Box 29, Gardena, Cal.

WATCH US GROW—"Quality Chicks." We are now booking orders for the season of 1921, White and Brown Leghorns. R. I. Reds and Barred Rocks. Order early. E. W. Ohlen, Campbell, Cal.

BUFF ORPINGTON males, imported stock, $6.50; eggs $3. Mrs. P. Bone, Linda Vista, San Jose, Cal.

FREE book, "CHICKENS FROM SHELL TO MARKET," on application to Coulson Company, Petaluma, Cal.

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GIANT BRONZE TURKEYS
Large turkeys can be raised at practically the same cost as small ones. It is in the strain. One of my toms will give you five more pounds of meat to market in all of his get the first year, besides vitality and beauty.

GOLD NUGGET STRAIN
Again win at California's two greatest shows, Gold Special Sweepstakes for best turkeys at California State Fair, 1920, against sixty-six of the State's best turkeys; also every first, second and third prize and Gold Special Sweepstakes at Los Angeles Livestock Show, 1920.

The Gold Nugget Strain have continually proved their superiority by winning Gold Special Sweepstakes at every show exhibited in the last six years, including six State fairs and all the largest shows in the West.

AN UNEQUALED RECORD
Toms and eggs for sale; also a few high class exhibition toms to win in any show. Circular after first of year.
J. WILL BLACKMAN
Originator of Gold Nugget Strain.
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TURKEYS—"Goldbank"-"Copper King V" strain. Selected giant bronze toms. Sired by son of famous "Copper King V," first prize yearling, N. B. T. Club Show, Madison Square, N. Y., January, 1919. Bred to 20-lb. hens. Egg orders taken. Prices reasonable. Address Bronze King Moutain Farm, P. O. Box 308, Calistoga, Cal.

HART'S MAMMOTH BRONZE TURKEYS. I have a splendid lot of young gobblers. These birds are large, heavy boned and well marked, everything twenty pounds and up. Young toms from $13.50 and up, depending in size and markings. No more hens. Eggs in season. Albert M. Hart, Clements, Cal.

FOR SALE—Several varieties. Bronze, White Holland, Bourban, red turkeys. Houdan pullets and hens. Muscovy drakes, eggs in season. Mrs. B. Hocking, 541 E. 33rd st., Los Angeles, Cal.

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BOURBON Red Turkeys, Buff Orpingtons, Buff Ducks. The Ferris Ranch, Grand Ave., Pomona, Calif.

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CALDWELL'S WHITE MUSCOVY DUCKS win, weigh, lay and pay. The largest duck of the duck family. The duck without the quack. Eggs, ducklings, breeders. Free circular. Caldwell Duck Ranch, Lock Box 274, Los Angeles.

# For more gas engine power and economy this spring
## —install the best piston rings now!

When a farm engine has wasted oil or gasoline, lost some of its power, or has had too many fouled spark plugs, carbon troubles, or repairs of this kind—the chances are that its piston rings are leaking. They are probably worn out—or imperfectly designed or made. Such an engine needs better piston rings if it is to give you complete satisfaction during your busy season.

Install the best piston rings now—while you have the time. Put a Superoyl Ring in the top groove of each piston to keep oil out of the combustion chamber. That will decrease carbon troubles and save lubricating oil. Put the real Leak-Proof Rings in all lower grooves. Their *equal radial pressure* keeps fuel from wasting past them. It is all compressed into power. Your dealer can sell you a size or over-size for every make and model of engine.

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It explains why McQuay-Norris Piston Ring Equipment will increase gas engine power, save fuel and oil, and decrease carbon troubles. Address Dept. AK

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American movement, stem wind and set watch, fancy design back, wonderful timekeeper, for selling 24 large, colored pictures or 24 packages post cards at 10c each. Order your choice.

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## Smokes His Meat by Painting It

**Utah Farmer's Simple Method Gives Wonderfully Delicious Flavor and Saves 20 Pounds in Every 100.**

Anyone can give hams and bacon a wonderfully delicious flavor and save time, money and meat through the easy curing method used with success by W. H. Laws of Richfield, Utah

Mr. Laws simply paints his meat with Wright's Smoke. By this method he smokes meat perfectly in a few minutes without fire, trouble or loss. Wright's Smoke gives the meat a better flavor than the old method, keeps all insects away and saves 20 pounds in every 100 by preventing shrinkage. Mr. Laws sugar cures his meat with a mixture of 7 lbs of salt and a bottle of Wright's Ham Pickle

A large bottle of Wright's Smoke or Wright's Ham Pickle costs little at any drug store. If your dealer hasn't the genuine, guaranteed Wright Food Products, write the E. H. Wright Co., 810 Broadway, Kansas City, Mo., for valuable free book



**FISH** Salmon in brine, 100 lbs., $11.00. Shipping weight, 165 pounds.

Smoked Salmon, 20 lbs., $3.40. Dried Codfish, 10 lbs., $1.75. T. A. BEARD, 4322 Winslow Place, Seattle, Wash.



**DEAF** Is your hearing failing? Booklet on Nature's Home Treatment Remedy sent FREE. The LISEN CO., Denver, Colo.


# Chaos to Confidence

(Continued from Page 5)

growers to start its work, then with this same money bought the growers' raisins. The company started out with a million dollars, which seemed in contemplation to be ample for its needs. It had difficulty raising this million dollars. The growers could not put up all of it themselves; therefore stock in the new company, which took the form of a corporation, had to be sold to non-growers, business men of the community who had no faith whatever in the enterprise and never expected to realize 50 cents on the dollar from their investment. These non-growers, incidentally, still hold their stock, but they are few in number as compared with the 10,700 grower stockholders. The stock is regarded as a good, conservative investment, but is kept out of the field of speculation by a charter provision limiting it to an annual dividend of 8 per cent. Profits above 8 per cent are pro-rated among the growers on the basis of their tonnage delivered.

That million dollars which enabled the company to make its first payment to the growers might have been but a few drops in the bucket, but it gave the organization a start and it found little difficulty in getting additional finances.

In that year of 1912 there was a holdover crop of 40,000 tons. Turned loose upon the market as usual it would have meant utter ruin for the new organization. There would have been no demand for the next season's raisins. Prices would have dropped and confidence in the company would have failed completely. The company's directors bought this crop themselves. It proved to be a wise proceeding. From that day to this there has been no holdover crop.

With their new organization finally on the way, and with nearly 90 per cent of the growers signed to its membership, the directors gave their attention to the finding of new markets and the increasing of raisin consumption. This they accomplished through advertising. They created a demand for raisin bread, and the bakeries have since consumed a big share of what used to be the holdover. They advertised recipes and sent broadcast little cookbooks devoted to tasty and tempting dishes in which raisins were a necessary ingredient. They advertised that their brand of raisins was the quality brand, and they got the housewives of the nation into the habit of asking for that brand. They acquired old packing houses and built new ones. So, little by little, season by season, they brought the industry up from the old condition of chaos until it had stability and the grower no longer looked into a future of despair

Today the raisin industry is prospering. This does not mean that every owner of a raisin vineyard is growing wealthy The average vineyard comprises but 18 acres. A man with 18 acres is merely able to make a decent living.

During the five years preceding the organization of the company, raisin production averaged 70,000 tons yearly This year it totals 170,000 tons In other words, production has more than doubled and where eight years ago there was a holdover crop of half the total tonnage, today the 170,000 tons is inadequate to supply the demand.

### Effect of Prohibition

It is admitted that the inordinate demand for raisins in 1920 was attributable in some degree to the eighteenth amendment to the Federal Constitution. The sly advice of near-beer's infancy to "put a raisin in it" has given way to a material use of raisins in the mixture of "kickful" concoctions of the cellar. The raisin company, seeking to discourage such uses and to encourage raisin consumption in the kitchen, this year established a higher price for its loose-seeded raisins, which seemed to be especially popular with the basement brewers, than for its fancy seeded raisins in cartons. But if there were no demand for such purposes there is still no question that every raisin produced this year would have found a ready market.

*Now every cook uses raisins.*

Nobody thought of using raisins for home brewing purposes in 1918, when the wineries and distilleries were still in operation. California produced in that year 160,000 tons of raisins and every raisin was sold many weeks before the new crop was ready for the market.

The California Associated Raisin Company is proud, of course, of having put the raisin business on a basis that returns a profit to the grower, but it glories above all else in its demonstration of the possibilities of co-operation. It has brought into existence a great community sentiment. It has made the thousands of people of its district into one contented family. It has advertised its brand as the brand of quality, and by the building of improved, up-to-date packing houses and the introduction of every possible system of cleanliness and sanitation in packing processes it has endeavored to make good that claim.

### Regarding Future Prices

Discussing the raisin company in a recent public statement President Wylie M. Giffen said:

"As to what the future may hold—who can say? Prices eventually will come down Of that I have no doubt New acreage is constantly being planted and instead of the 200,000 tons which we regard as the normal production of today we shall have to reckon with perhaps 400,000 tons We shall necessarily have to develop markets abroad. We shall have to come into more direct competition with the raisins of Spain, Smyrna and Australia. We shall have to continue educating our own people to the value of raisins as food and thereby increase home consumption to keep pace with production

"I do not believe the raisin industry can ever decline to its old position. I believe it has been stabilized sufficiently to insure against that and I feel that greater than the fixing of immediate price or the guaranteeing of assured profit is the example set by the California Associated Raisin Company in co-operative marketing by farmers"

## Peach Thrips

(Continued from Page 6)

the attack. Careful observations in many orchards throughout the peach growing district of San Bernardino County indicated that there was no value whatsoever in early cultivation as far as thrips control is concerned. Some of the most seriously infested orchards were those which had been

*Injured Nectarines*
*These specimens were rendered worthless by thrips attacks.*

kept absolutely free from weeds and other vegetation after the first of February.

The severity of injury from peach thrips in those sections where it has occurred, furnishes good reasons for every peach grower to watch for the insect when peach trees are blooming, or when the fruit is in the jacket. Control methods, while not positive, may be satisfactorily employed during seasons of normal bloom, but the suggestions given above must be carefully observed.

## Nursery Stock Pointers

Kindly advise me as to the planting and care of nursery stock, and also where I can secure Salway peach pits for nurseery.—H. L. Sargent, Yuba City, Calif.

**Professor Weldon's Reply**

Monthly Bulletin No. 5, Vol. 7, of the State Department of Agriculture, on "Pear Growing in California," treats of the selection and care of nursery stock in detail, and generally the things that apply to the pear apply also to other fruits. Of course, methods of growing seedlings differ somewhat, according to the kind of fruit you wish to grow. This bulletin can be secured by writing to the Department of Agriculture, Sacramento, Calif.

In the case of peaches, the seed should be bedded down in pits in the fall of the year. This work is generally done in October or November, the seeds being stratified. The ordinary method is to dig a pit about twelve inches deep and of sufficient size to hold the quantity of pits to be used in growing the seedlings. Alternate layers of seed and soil are put in the bed until it is full, the soil kept damp at all times.

About January the seeds should be cracked and ready for planting in the nursery row. The seedlings, if they do well during the first season, should be ready for budding in the month of August. Detailed information regarding this operation may be found in the above mentioned bulletin.

I don't know where Salway peach pits may be secured, but nurserymen get their supply from the canners and I presume that the local canneries in your county might have a small supply on hand. In Southern California local nurserymen spoke for all the Salway pits that were available early in the season and nothing, I believe, can be procured now.

## Dipping Prunes

Would you please tell me how to prepare prunes for drying?—Edith Schmidt, Tuscarora, Nev.

**Professor Weldon's Reply**

It is a comparatively easy matter to dry prunes in the sun. Dip them first into a caldron containing boiling lye water made by dissolving 1 pound of concentrated lye in each 20 gallons of water. After taking them out, split the skin slightly, which hastens evaporation and facilitates drying. A wire basket generally is provided for the purpose of dipping the prunes into the lye solution. Place them in shallow trays in the sun until they are dry, which will require from one to two weeks, according to weather conditions.

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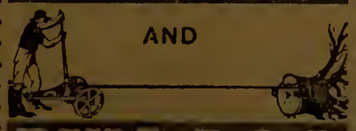

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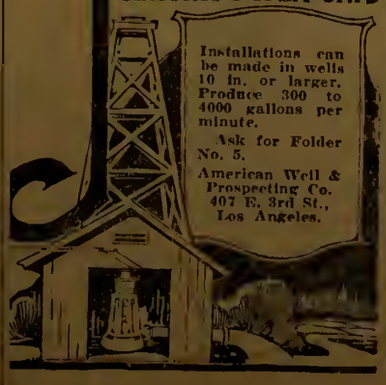

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WE WENT RELIABLE PEOPLE to raise Fur-Bearing Rabbits for use in their back yards, spare time. We furnish stock and pay $3.50 to $7.50 each for all you raise. SUNSET FUR CO., 507 Lankershim Bldg., Los Angeles, Cal.

THOROUGHBRED Flemish Giants and American Blue breeding does and bucks cheap. In last 3 shows, Riverside, San Diego, Los Angeles, 14 entries, 12 prizes. Mike Ditzel, 936 Maple, Los Angeles, Calif.

REGISTERED Himalayans, reasonable. Valuable imitation ermine fur rabbits. Satisfaction guaranteed. Black and White Fur Rabbitry. J. D. Hall, 1375 E. 49th St., Los Angeles.

PEDIGREED Flemish Giants, also utility stock; no fancy prices. Mrs. T. Beeching, 1578 W. 46th St., Los Angeles, Cal.

RAISE HIMALAYAN, the only genuine fur rabbit, $5000 per year from 50 does. Young stock, $8 pair. Himalayan Fur Farm, Sta. B., Box 566, Pasadena, Cal.

PEDIGREE New Zealand Reds, $5.00. W. Herbert, 433 Tennessee St., Vallejo, Cal.

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DETECTIVES EARN BIG MONEY. Excellent opportunity. Experience unnecessary. Particulars free. Write, American Detective System, 1968 Broadway, N. Y.

MEN desiring Government, post office and railway mail positions; $125-$190; experience unnecessary; particulars free. Write Modern Institute, Dept. 17, Denver, Colo.

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## LIVESTOCK—Sheep, Milch Goats

REGISTERED Toggenburg grade does; hornless, chocolate color, with usual white markings, 4 years old, 3-quart, bred to California Prince, No. 1768; will be fresh February 10, 1921; price $75. Another grade doe, hornless, color same as above, 2 years old, bred to California Prince, No. 1768; will be fresh first time February 16, 1921; price $60. Crates $5 extra. Dr. W. L. Goldberg, Sebastopol, Cal.

FOR SALE—Milk goats, good stock, gentle. Young and mature does bred to freshen March to June. Russell Goat Ranch, Calistoga, Cal.

## LIVESTOCK—Duroc Jerseys

DUROC-JERSEYS. One "Johnson Defender" boar, 20 months old, also Gilts, Boars and Weanlings by this boar. H. E. Boudier, Napa, Calif.

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BIG JACK—Snap if taken now, my health makes sale necessary. Shelly Kelso, Cardiff, Cal.

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| 1919 Roamer, Sport Model | $2250 |
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Also several others not listed. Look these cars over before buying and save $100 to $300. Trial allowed and cars fully guaranteed. Money back if cars not satisfactory. Your old car taken in exchange.

We have sure cut the prices. Call or write and we will convince you. Open evenings and Sundays. Time payments arranged.

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# Automobiles 100-Wanted-100

**Must be late models of all kinds. Highest prices paid. Get our offer before sacrificing your car.**

# Central Motor Sales Company

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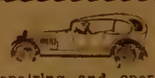
Will not lift cushion to put gasoline into tank any more. They are installing the GOITE filler and gauge, which shows amount of gasoline in tank at all times, and fill tank without moving seat cushion. Easy to install. Nothing to get out of order. Send for literature. J. A. Baker, Agt., 1143 W. 7th St., Los Angeles, Cal.

## FARM TRACTORS, MACHINERY



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SAVE one half on slightly used implements. Good assortment. Trades considered. Cash or time. ARNOTT & COMPANY, 112 South Los Angeles st., Los Angeles.

WANTED—Beeman or other small tractor outfit. State price. G. H., Route 8, Box 467, Los Angeles.

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EVERYTHING SECOND-HAND—All kinds stoves, plumbing supplies, pipe, farm tools a specialty. Noah's Ark, 609 East 1st St., Los Angeles. Phone 19750.

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For hardiness, well-branched roots and freedom from disease, our foothill grown trees have no equal.

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Plant the aristocrat of all vegetables, the Globe Artichoke will fruit each year for your life time, without cultivation. Ornamental foliage used to hide unsightly places, fence corners, etc. Large plants, 25c each; $2.00 per dozen. Winter Pie Plant, 25c each; asparagus, 4c each, strawberry plants 2c and 3c each. We furnish all kinds of fruit trees and ornamental stock. Smith's Nursery, 833 Beach avenue, North Inglewood, Calif.

IMPROVED French prune, Sugar prune, Elberta and other peaches, Bartlett and Winter Nelis pears, plums, apples, figs, grape sand grape cuttings, berries, etc. Stock never better and priced right. Submit list of your wants for special prices. J. F. Miller & Sons, Healdsburg, California.

CAROB TREES

The tree with a great future in California. Send $2 for two small trees, sample of Carob pods, sample of Carob flower, 1 oz. of Carob seed. "The Future of the Carob Tree in California," and our contract growing plan. Jas. W. Bryan, Rialto, Cal.

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TRY US—"Reliable" Fruit Trees, Plants, Grain and Garden Seeds, on approval. Write J. L. Lawson, San Jose, Cal.

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RAISE feed for your chickens and rabbits and save money. Giant kale, 25c per package. Chickory, 25c. Belgian mammoth carrots, 10c. 25c per oz. Mrs. C. A. Richey, R. 7, Box 854, Los Angeles.

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RELIABLE CABBAGE SEEDS

I grow them. You want them. Let's get together. Write ME for special TRIAL offer on just what you will need. Isaac F. Tillinghast, 26 Podel St., Santa Rosa, California.

CHOICE onion seed, Australian Brown, $1.25 per pound, postpaid. F. A. Polke, Atascadero, Cal.

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STRAWBERRY plants; rigid inspection guaranteed. Everbearing, $1.50 per 100, prepaid. New Oregons, Gold Dollars, Premiers, Magoons, $1 per 100, prepaid; $7.50 per 1000, prepaid. Order now. J. W. Vinacke, Canby, Oregon.

PRODUCTIVE EVERBEARING STRAWBERRY, plants Idaho grown; 25c dozen, prepaid. Evergreen Plantation, New Meadows, Idaho.

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GROW Strawberries in your back yard, 36 selected plants by parcel post, $1. F. W. Witt, 24 California St., San Francisco.

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Save onehalf or more on your Christian books or magazine subscriptions by joining my New Thought Literary Club. Full particulars, prices and list of publications free. Morris Spencer, Dept. 101, Sawtelle, Cal.

# Sunflowers

A careless song, with a little nonsense in it now
And then, does not misbecome a monarch.
—Horace Walpole

## They Always Sell

Breakfast foods are still the fad—
For the farmer it's not bad.
Here's a business can't be beat
Plant your fields to shredded wheat.

Corn flakes grow as well as corn—
People eat them every morn.
Don't grow grain to feed the shoats!
Just produce some fruited oats.

Rice sells better when its puffed,
And your purse will soon be stuffed—
If you leave the beaten trail
And produce these things for sale.

When your wheat and corn and rice
Will not sell at any price,
Don't be angry—don't be rude—
Plant your fields to breakfast food.
—Justin Nutt.

(Written for ORCHARD and FARM. Copyright.)

## Astonishing Ads

FOR SALE—My 5-acre cattle ranch, fully stocked, including one bald-face steer.

WANTED—Partner for bee farm. I have the hives.

TO TRADE—Furniture for fire-arms. My wife and I have separated.

NOTICE—Bring your apples. Go home happy. Watkins Cider Mill.

## The "Green" Hand

The Boss—"What do you think would be the best way to move these young pigs?"

His Nibs—"I'd put them in the litter carrier."

## Natural Mistake

Tommy, with clothes obviously in need of repair, was selling his papers on a cold and windy street in Chicago.

"You poor little boy! Where is your mother?" inquired the pious old lady.

"She's in a land of sunshine, where there's flowers all the time and no cold wind ever blows," chanted Tommy.

"Ah, so sad!" sighed the good lady, "to die and leave you so young."

"What-de-ye-mean, die? Me mother ain't dead. She lives in Los Angeles."

Mark Twain once said, "To be good is noble, but to teach others to be good is nobler—and less trouble."

### HUSKS GROW ON A NUT

"No longer a murderous fury I harbor
As I stretch out my length in a chair,
And list to the words of a garlic-breath'd barber,
'You gotta not mucha da hair!'
No longer I care if the light is reflected
On a wholly defoliated dome,
Or feel that a fellow is never respected
Who's abandoned forever his comb.
For heads shy of thatches are seldom erratic,
And tho little children may jeeringly spoof,
I'd rather be bald than have rats in my attic—
I'd rather be hairless than cracked in the roof!"

## Can't He Be Cured?

There are rent hogs and seat hogs,
And hogs of every mode;
But the hog we all dislike the most
Is the one that hogs the road.
—Justin Nutt.

## A Diplomat

A diplomat is a gentleman who can tell a lie in such a manner to another gentleman (who is also a diplomat) that the second gentleman is compelled to let on that he really believes the first gentleman, although he knows that the first gentleman is a liar who knows that the second gentleman does not believe him. Both let on that each believes the other, while both know that both are liars.

"Now, Johnny, continuing our lesson on dietetics, name a food that would tend to generate heat in the body."

"Chile peppers raised in a hotbed."

# The tractor you've waited for

CATERPILLAR

## 5-TON Tractor

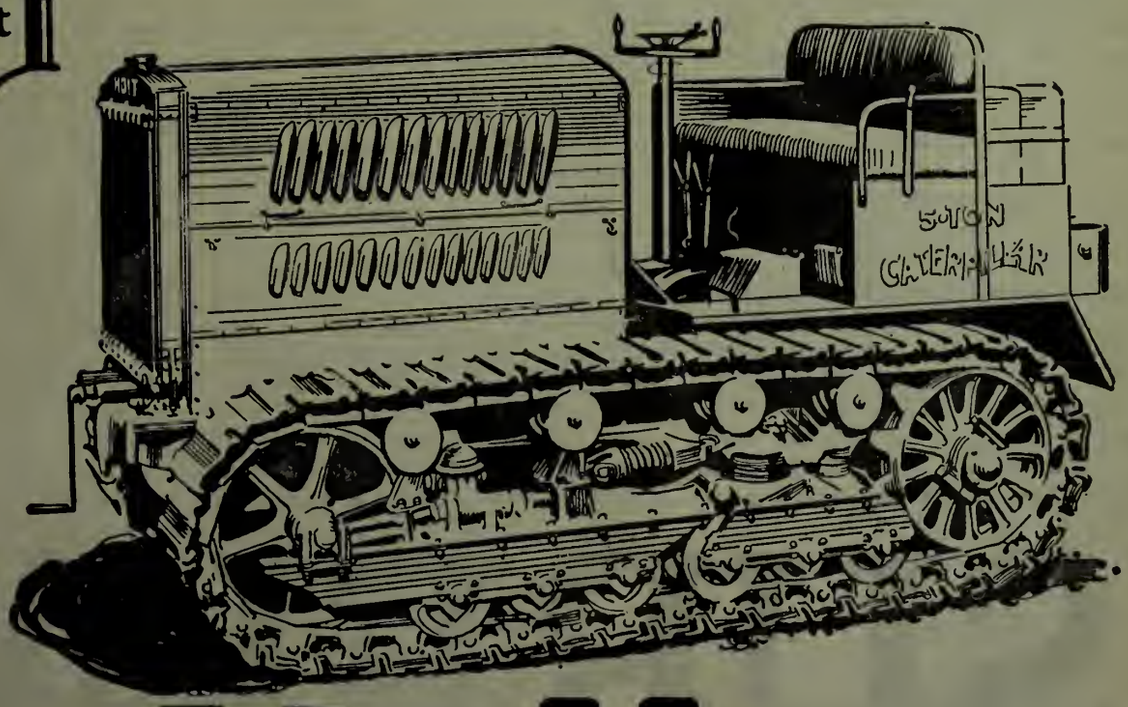
**narrow**
**low-down**
**light-weight**
**versatile**
**dependable**
**long-lived**

There's only one Caterpillar Holt builds it

You've formed your ideal of a tractor that will exactly meet your requirements—you who haven't needed as big or powerful a tractor as "Caterpillar" 45 or 75. You've wanted a smaller tractor, but not the *ordinary* small tractor. You've wanted liberal power, absolute dependability, low operating and upkeep costs—above all, you've wanted a long-lived tractor. You've wanted, in short, a small tractor of the quality of design and workmanship that can be found only in Holt products, and you'll find your ideal in the "Caterpillar" 5-ton Tractor.

Perhaps you realized this when you heard of 5-Ton's achievements in war and peace-time work on two continents. Perhaps you determined then to wait until this tractor was available for delivery in this territory.

But if you haven't investigated the 5-Ton, if you aren't already familiar with its detailed points of superiority, investigate it without delay. For a time, at least, only a limited number of "Caterpillar" 5-Ton Tractors will be available for delivery here. You must act promptly to secure immediate or early delivery. Write, phone or call at the nearest Holt branch or agency.




THE **Holt** Manufacturing Company

Stockton, Cal.
Peoria, Ill.
Spokane, Wash.
Los Angeles, Cal.

# *Every* hen in your flock is a "PROMISE TO PAY"

THIS hen means well enough. Chances are, she has the best intentions in the world. She is quite willing to own up to the fact that she is your debtor. You feed her. You take good care of her. [Perhaps you've raised her from chickhood.] And you devote your time to her physical welfare. In return for all that, you have every right in the poultry world to expect enough eggs to pay a healthy interest on your investment. But then—

Remember that even the best-intentioned hen won't "pay in full" unless the feed you give her contains the elements necessary for egg-building. Nature provides each laying hen with just so many eggs in embryo. And if you leave it to Mrs. Biddy she is apt to take six or seven years to produce her full quota of eggs. And, incidentally, she is apt to leave *you* high and dry in the process.

Your job, then, is to make Mrs. Hen "make good" her promise to deliver this amount of eggs in *two or three years.* And the biggest single help you can have is SURELAY. For it is SURELAY'S mission to make your hens pay by making them lay.

When we say SURELAY is the "cheapest" feed you can use, we mean just this: SURELAY will net you *more* in return for your feed-money than anything you can buy. You must realize that it takes more energy for a hen to convert poor feed into money than it does to convert good feed into money. What's more —there isn't such a heap o' difference between the cost of good feed and poor feed. But look at the profit-difference when you're through!

That's why thousands and thousands of wise poultrymen have come to bank on SURELAY. It contains the ingredients your hens need to make them profit-producers. These ingredients are balanced and blended more skillfully and economically than can possibly be done by hand. And SURELAY is always uniform—always the same—thanks to our daily laboratory tests!

If you want to see how SURELAY will help you "cash in" on all the "promissory notes" in your flock—simply clip the coupon below. In return you'll get a copy of our booklet, "Makes Hens Happy." It shows how to spur your flock into action and make 'em happy in the bargain. Send for it today—it's free!

# SURELAY

"A Sperry Product"

STOCK AND POULTRY FEED DEPT.
SPERRY FLOUR CO.
WEBER AVE., STOCKTON, CAL.

Please send me, without obligation, your booklet, "Makes Hens Happy."

Name _____

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Address _____

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"There's a Sperry Feed For Every Stock and Poultry Need. And Remember—Every Sack Is Guaranteed."

"The hens that PAY are the hens that LAY"

March, 1921 10c the Copy

# ORCHARD and FARM

ESTABLISHED 1888

*Read*
*In This Number*

The Farmers and the Power Companies—Page 5

Dehydration of Peaches

Timely Orchard and Garden Suggestions

Buttermilk from Skim Milk

A Bright Array of Helpful Features to Interest Every Member of the Rural Household—Prize Contest for the Boys and Girls.

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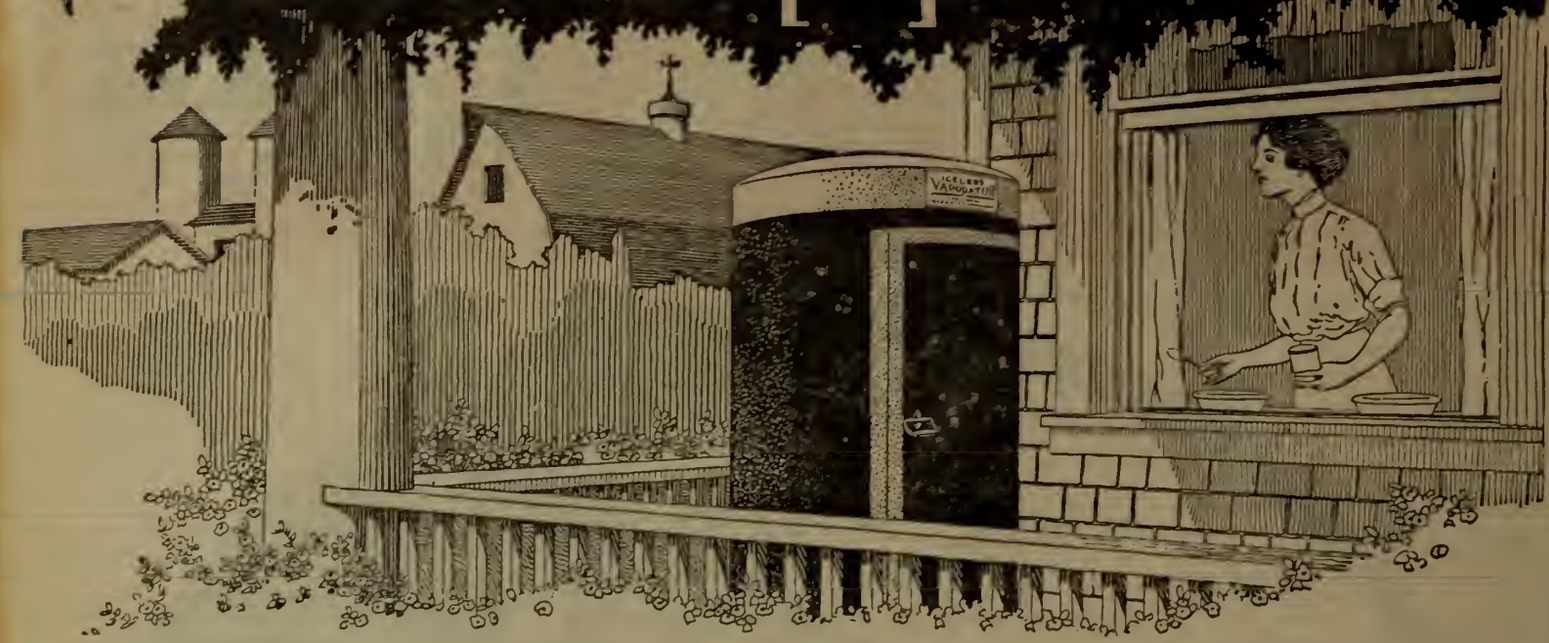
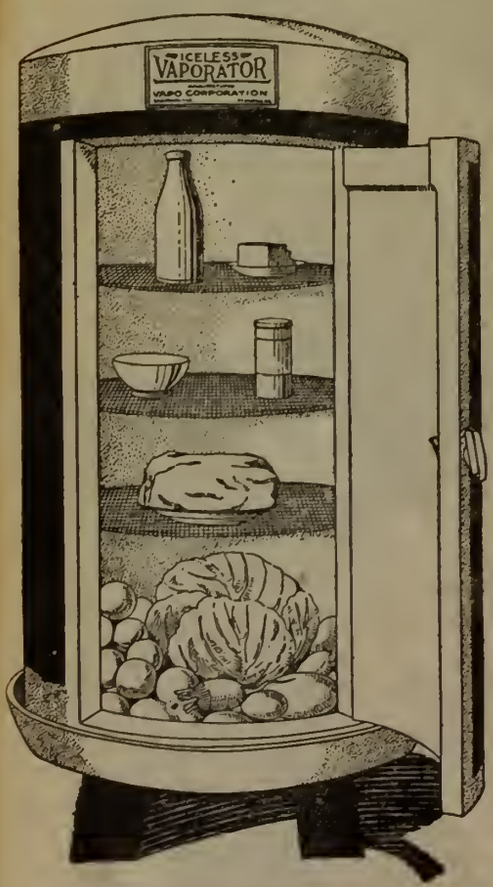
Offices: Los Angeles and San Francisco

# The last word in modern Farm Equipment






*The Iceless Vaporator stands 5 feet high. Diameter, 28 inches.*

*Food Chamber is 43 inches high. Diameter of Food Chamber is 24 inches (so you see what a goodly quantity of food stuffs finds place in the Iceless Vaporator).*

*The dimensions of the door accommodate milk pans of the largest size.*

*The constant circulation of air is achieved by such cautious screening of openings that the Iceless Vaporator is proof against ants, insects, anything that either creeps, crawls or flies, and is also dirt-proof.*

**$90.00**

**All these wise provisions are set forth in the booklet *"Refrigeration Without Ice"* which we shall hasten to mail to you if you will send us your address.**

The ICELESS VAPORATOR brings the convenience of the city ice box to the farm.

Place the ICELESS VAPORATOR on your back porch, or under a tree in your back yard. Every two or three days fill the tank with water. Evaporation does the rest. It's always cool inside. No ice to worry about.

The ICELESS VAPORATOR is made of a composition which is virtually a stone sponge. The outer wall absorbs the water until thoroughly saturated. Evaporation then takes place.

The inside of the ICELESS VAPORATOR is cool and dry. Easily cleaned. No corners to catch the dirt. The galvanized wire shelves are sanitary and permit circulation.

The food is preserved at an even temperature, thus keeping it fresh and sweet.

Once installed, the ICELESS VAPORATOR becomes a lifetime friend.

Ask your dealer about the ICELESS VAPORATOR, or write us direct.

**TO DEALERS**

**There will be one Iceless Vaporator dealer in each town. Behind him will be put a forceful advertising campaign. Write for agency.**

ICELESS VAPORATOR
TRADE MARK
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# ORCHARD and FARM

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**OUR EDITORIAL POLICY**

Orchard and Farm is a magazine of, by and for agricultural people. We believe that to the tiller of the soil is due the best that life affords. We believe that he is the bulwark of the Nation. We honor him as the basic producer. His problems are our problems; his triumphs, our triumphs, his joys and sorrows, ours. To record his achievements and expose the duplicity of his enemies; to fight for and with him; to give him genuine help and practical information; to assist, entertain and inspire every member of his happy household—that is the policy of Orchard and Farm.

**SEASONAL SUGGESTIONS—MARCH**

Test the seeds; adjust the drill. Don't let Bossy eat her fill of new alfalfa, wet and green. Exercise the horse that's mean. Overhaul the pumping plant; clean the ditches; fight the ant. Is your spraying work complete? Has the mare enough to eat? (The one that's working every day and due to foal sometime in May.) Plant the garden in long rows; put new couplings on the hose. Use the hoe and weeder well. Don't be in a rush to sell. Though we have a flattened purse, still we know it might be worse. The backbone shouldn't lose its starch, just because it's damp in March!—Jason Wells. (Copyright.)

## Pithy Paragraphs

Smokeless powder and mending cement—both made from cotton. With the one product we can blow an object into bits; with the other we can put it together again. Now, if science only could develop a process for stabilizing the market, the cotton growers would have the world by the tail!

**"Protect industry and educate the farmer," has been the policy of our National leaders. Perhaps, however, the time has come to protect the farmers and educate industry.**

"Every doubtful orange is a cull," is the motto posted over the door of a certain citrus packing house. The same principle may be applied with profit to all farm products or industries.

**Speed doesn't always indicate quality. The fastest colors won't run.**

The man who cares for his orchard as well during periods of low fruit prices as when they are high will reap his reward when the orchard barometer begins to rise after the period of depression. Orcharding is a business requiring capital the same as any other kind of business. Spraying, pruning, cultivation, irrigation and fertilization all may be necessary at considerable expense, but the successful fruit grower is the one who will keep his orchard in first class condition during "lean" years.—G. P. W.

**This is a "fighter's year." The rewards of 1921 are not for him who seeks the easiest way. Business is settling down and getting its second wind. The race will be hard and gruelling. Many "four-flushers," who have ridden high on the wave of prosperity, will be at the mercy of the real workers. And, let us hope, the fittest will survive.**

Jas. C. Mullin
Editor

### ALFALFA ARTICLE

Publication of Professor Madson's article on "Alfalfa Varieties" has been postponed until the April issue. Watch for this interesting and timely feature next month.

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WHAT was all dem gwines on ovah to youah house las' night?" enquired Sam White of his friend, Bill Black. "Sounded lak a couple o' catamounts done broke loose."

"Huh," replied Bill, "Dat wuz jest de furniture instalment man collectin' his easy paymints."

While not all easy payments "come easy," credit is a creditable institution—in its proper place. The farmer is one of the greatest users of credit. Much farm equipment is bought "on time," with the banker's consent and assistance.

Many ORCHARD and FARM advertisers extend the courtesies of credit, knowing it is "good business."

Decide upon your purchases on the basis of actual need and profitable investment, rather than cash on hand.

But whether you pay cash or buy "on time" consult this convenient directory whenever you need anything for ranch or home. Every one of these questions is answered in the advertising columns of the page listed opposite:


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### THE "GREEN" HAND

The Boss—"Do you know how to treat seed potatoes?"

His Nibs—"W-w-why, I suppose they ought to be handled with care."

There's a treat in every issue of ORCHARD and FARM. Agricultural subjects are handled with care and others with caution—if at all. Some papers are famed for their yelping, but ORCHARD and FARM is best known for its helping. If you appreciate practical, boiled-down information presented in a snappy way, please tell your friends about California's live-wire farm magazine.

### A Creed in Twelve Chapters

**(3) Contentment.**—There is a contentment that is noble, and there is a contentment that is ignoble. A contentment based upon the certainty that one's life as a whole is an appreciable contribution to the welfare and happiness of human kind, is a noble contentment. Upon this firm footing of worthy service one may know rest and peace amid the wildest turmoil of confusing events; one may sense security in the fiercest storm of material disaster. But to seek contentment in the Fields of Being Served is to seek a mirage that, with its visionary promises, lures one aside from the true way; only to leave one, at the last, stranded and alone in the desert of a shameful and dependent selfishness.—Harold Bell Wright.

*Hard this way, but—*

*Easy on a track The Cletrac Way*

# *More Work and Shorter Hours —with the Cletrac*

Guarantee yourself a bigger crop and more profit—give yourself more time for other work by plowing and discing this spring with a Cletrac. Rugged and powerful enough for any kind of work—steady and dependable—the Cletrac cuts the cost and time of doing it. Its sturdy motor and strong parts keep it on the job straight through the year—and 24 hours a day if you get behind.

Cletrac makes short shift of plowing, and gets right back on the field again with the discs. With its weight distributed over 800 square inches of track surface—only 4½ pounds per square inch, or half the pressure a man exerts—Cletrac treads lightly over mellow earth without slipping, digging in or wallowing. Cletrac always delivers the full rated drawbar pull of its heavy-duty motor—and never packs the soil.

Turns short—a turn of the wheel does it. On open land Cletrac swings quickly back to the furrow, without loss of time or power. And in the orchard its low build lets you weave in close to the tree trunks.

Cletrac is the *one* tractor adapted to *all* conditions—wet or dry, flat or hilly—that will pull your implements, harvest as well as cultivate, and run your belt machinery cheaply, too. Read the whole story in that interesting booklet, "Selecting Your Tractor." Write today—it's free.

### *Specifications*

*Horsepower:* 12 at drawbar, 20 at belt pulley.
*Length:* 96 inches.
*Width:* 50 inches.
*Height:* 52 inches.
*Weight:* 3420 pounds.
*Turning Circle:* 12 feet.
*Traction Surface:* About 800 square inches.
*Center to Center of Tracks:* 38 inches.
*Belt Pulley:* Dia. 8 inches; face, 6 inches.

## THE CLEVELAND TRACTOR CO.

*"Largest Producers of Tank Type Tractors in the World"*

19081 EUCLID AVE., CLEVELAND

PACIFIC COAST SALES OFFICES

LOS ANGELES, CAL. SAN FRANCISCO, CAL. SPOKANE, WASH.

ORCHARD and FARM

VOL. XXXIII. MARCH, 1921 No. 3

# The Farmers Want to Know

## Are We Paying Just Tribute to the Men Who Have Harnessed California's Natural Resources?

"MORE power to the farmers and less to the power companies," is suggested as a slogan for the latest project of the California Farm Bureau Federation. California farmers pay over $10,000,000 for electric energy every year. In many districts they depend entirely upon the water pumped by electricity. Not a few power users have paid their bills with their fingers crossed. "This is our charge," the power companies have said. "Now what are you going to do about it?"

Smarting under what they considered to be unjust rates, farmers and farm organizations have filed briefs with the State Railroad Commission, but in almost every case there have been as many kinds of briefs as there were lawyers. This has been pleasant enough for the power companies, for the conflicting claims simply have neutralized each other, resulting in dismissal of the cases. The producers, therefore, have gone on using the power, paying the bills and swallowing their wrath.

Individually, the California farmer has not been in a position to assert his rights. But, collectively, the producers have attained a new confidence. They want to know a great many things, and they do not propose to wait for information to filter out through the carefully sterilized mouthpieces of the power trust. They are going after it themselves in their own way, and they propose to use their findings to get a square deal.

### The Farmers' Board

THE PUBLIC UTILITIES DEPARTMENT of the California Farm Bureau Federation is digging up a lot of interesting information. This board has been established as a permanent committee, to handle collectively, as a State organization, the interests of power users, and to secure fair decisions based upon real facts. Discussing the work of the Farmers' Public Utilities Board, Dr. [illegible] Walker, president of the California Farm Bureau Federation, and also a member of the executive committee of the American Federation, disclosed recently to ORCHARD and FARM the lines along which the farmers will prosecute.

"We are attacking the cause, not the effect," said Dr. Walker. "We are getting down to basic principles. We maintain that not the rate but rather the valuation on which the rate is based should be regulated. We have the full support of the State Railroad Commission in ferreting out evidence from the books on public service corporations. We believe that our investigations will demonstrate flagrant and unrighteous boosting of valuations by some of the power companies.

"Without making any accusations, we want to know whether corporations which serve different classes of consumers are exacting a toll from each which should be distributed among all.

To illustrate the position of the farmer, Dr. Walker outlined a hypothetical case. Suppose, he said, that a certain corporation supplies light to a municipality, power to a valley of farmers and water to a community below its dam. Is it possible, he asks, that in some cases such a company may be exacting a toll in rates from each class of consumer that should be distributed equally among all of them? Is the rate based upon the true investment, or is each class of consumers charged according to the total investment?

### How Many Hides?

THE possibilities for such manipulation are interesting. One is reminded of the advertisement of a leather substitute manufacturer who asks, in bold, black type in all the magazines: "How many hides has a cow?" If, among five classes of consumers, each pays a rate for his power based upon the total valuation of the company's equipment, what delightful thrills the stockholders must experience when the dividend checks are distributed! "We are not sure these things are going on," concluded Dr. Walker, "but we want to know."

The Farm Bureau Federation, however, is not satisfied with simply "wanting." Nowadays, the farmers have a way of going right ahead with their projects and getting quick results. The present campaign of righteous indignation has resulted in a Statewide movement. Through the Farm Bureaus, and by means of increased dues, funds are being collected. With the money thus made available, a complete and searching investigation will be undertaken, with the purpose of arriving at a just valuation upon which rates shall be based.

The data secured will be laid before the State Railroad Commission, which, acting in a judicial and impartial manner, agrees to render a decision fair to both consumer and producer of power. "And this is all the farmers want," Dr. Walker points out. "It is not their desire to impose any hardships on the concerns which have developed California's natural resources, nor do they desire to establish such a low rate that further development will be discouraged. They want only a square deal."

### And Who Pays?

OUTLINING in brief a few of the things the farmers want to know, Dr. Walker submits the following questions: How were the large watersheds acquired? In what way are the funds for depreciation used; have they been accumulated and diverted to private gain; have they been used in keeping the plants up to the highest state of efficiency, or have they been employed in new development? Have the rates been raised because of costly mismanagement, stock watering transactions and mysterious sales and resales? When a public utilities company sells its bonds below par to a subsidiary company, is this loss made up by the power users who pay the bills?

There are other things the farmers want to know and propose to find out. For instance: Is construction work let to subsidiary companies at a higher rate than would be charged by independent companies? Is it fair to the public to base rates upon valuations maintained during the past five years? All these things the farmers want to know.

To arrive at the desired information, they must employ leading engineers, statisticians and expert accountants. Such men do not work for nothing, but the Farm Bureau Federation believes that anything worth doing at all is worth doing well. The various county Farm Bureaus are contributing heavily to the fund.

The Railroad Commission has assured the farmers that sufficient time would be granted to carry on the investigation and has complimented them upon the thorough and scientific manner in which they are conducting it.

There has been much criticism of the commission. Some have made the accusation that it is less interested in the public welfare than in the welfare of the corporations it regulates. But it must be said that this body has shown a kindly attitude towards the new farmers' board. Events will prove whether this attitude is genuine.

### Important Co-Operation

CLIFFORD THORNE of the American Farm Bureau Federation statistical department has offered the services of his staff, his equipment and even his attorneys. Clifford Thorne is the man who appeared before the United States Interstate Commerce Commission and prevented the railroads from making their $3,000,000,000 steal.

The evidence that the American Farm Bureau Federation, through Mr. Thorne and other members of his committee, placed before the Interstate Commerce Commission is saving the freight payers of the United States over $400,000,000 a year, according to Dr. Walker. What the Federation has done for the Nation, the California Farm Bureau proposes to do for this State.

Discussing the present membership campaign, Dr. Walker expressed the belief that the California Farm Bureau Federation soon would include 50,000 of our producers. And when 50,000 determined farmers, representing an industry exceeding in value by $500,000,000 its nearest competitor, really desire certain information, they are fairly certain to get it. The question to be decided is this: Are the present rates just? The farmers want —and propose—to know.—J. C. K.

# Reclamation, Irrigation, Realization—By the Editor

*This is one of a series of stories concerning famous ranches and agricultural districts visited by the editor of ORCHARD and FARM in his travels. Watch for more of these articles, to appear at frequent intervals. Perhaps your section will be the next one "written up."*

"ONE day not so very long ago I arrived at this spot in a motor boat."

Robert E. Jones, personal conductor of my tour through Sutter Basin, pointed to the cement steps of the enormous drainage pumping plant near which we had parked the car.

"Moreover," he continued, "this was the only island in a great lake which extended for miles."

Knowing my friend, "Bob," as an experienced newspaper publicity and advertising man, I could not but accept his statement as gospel truth, although I did look incredulously across the vast area of cultivated fields which he pointed out as the former bed of the big pond.

*A Planting Scene in Sutter Basin*

### A New Empire

In these alluvial lands along the Sacramento River and its tributaries—both south and north of the Capital City, engineers have brought about many miracles. Dikes have been thrown up to keep off overflow water in winter. Lands formerly available only for pasture in summer now produce crops which stagger the imagination. But of all the many projects, none is more remarkable than the Sutter Basin.

"In the first place it is not a basin," asserted my guide, as we sped over the cement highway on our way to the 50,000-acre tract. "In reality it includes a ridge which is higher than the surrounding country. Adjacent or tributary to it are two great by-passes, for storage of excess water. These might more properly be termed the 'basins.'"

Contour maps show the so-called Sutter Basin to be a vast, fertile area of gently sloping land, about 18 miles long and eight miles wide at the largest portion.

True, the area consists of "lowlands," but, wisely, the owners make capital of this point. For "bottom" lands to the farmer mean rich lands, and Sutter Basin is called the "last of the bottom lands" which have brought fame and fortune to this district of California.

### Nature Out-Natured

Engineers have a way of turning Nature topsy-turvy. This is what they have done in Sutter Basin. Oddly enough, after draining the tule swamp, they set about to provide water for irrigating it, and after accomplishing this purpose they installed a system for draining off the irrigation water. Finally they tackled the added problem of clearing large areas of trees with which scattered portions of the tract were covered.

Nature is not allowed to act natural in the Sacramento lowlands. Here the engineers have taken strange liberties. And it fell to George F. Maddock, a leader in this profession, to develop the Sutter project. Successful solver of knotty problems, he was sent West on behalf of the Eastern capitalists interested by W. E. Gerber, a Sacramento banker, in the Sutter project.

What Maddock discovered during his first inspection trip fired his imagination. Where others had seen only low lands of small value, he visualized a wonderful, new empire. His report was favorable, and he was commissioned to create out of the unappreciated tule beds a country of luxuriant fields and happy homes.

After I had talked with him at his Sacramento office I realized that his work there is almost completed. A true engineer, now that his dreams are about to be realized, already he is becoming restless. Perhaps a new frontier will claim him soon. Maddock is a developer, a creator, if you will. He has only passing interest in peopling the empire for which he has laid the foundation.

Many of us regard mechanical genius as painfully practical. The true engineer, however, is a dreamer—the most useful kind of a dreamer, in fact, for he devotes his energy to making his own dreams come true. Sutter Basin has reached the turning point. What the next ten years may bring is best suggested by Mr. Maddock's predictions.

"I am confident," he said, "that this great area will support a population of 2,000 or more farm families. I believe that our principal town will have 15,000 inhabitants. I can predict with assurance that the net annual production of Sutter Basin will be valued at from $8,000,000 to $10,000,000."

Leaning back in his chair, and gazing out the window with a far-away look in his eyes, he said: "I can see here another Santa Clara Valley—with thousands of acres of fruit trees, hundreds of neat farm bungalows set upon 5, 10 and 20-acre tracts, modern schools, happy children, busy towns, wealth, health, contentment.

George F. Maddock worked his way through the university and has worked his way into the leading ranks of the engineering profession. His are remarkable, but not idle visions, and they may be accepted as solidly founded. But let us see what already is being accomplished in this interesting agricultural district.

### Farming Own Lands

While completing its plans for colonization, the company which has developed Sutter Basin is doing a little farming for itself. In fact, according to J. R. Waybur, agricultural superintendent, his concern is "dabbling" in several lines of production.

Mr. Wayhur juggles big figures with an agility born of familiar association. Among the various projects which are being carried on under his watchful eye are listed the following 1921 plantings: 2,800 acres of sugar beets, 500 acres of beans, 3,000 acres of wheat, 4,800 acres of barley, 1,200 acres of rice and a large acreage of alfalfa.

In addition the company will maintain a 50-acre garden of vegetables for feeding the 1,100 men engaged in farming, construction, irrigation and other work.

Mr. Waybur has gathered together one of the most complete production organizations in the West. A diagram of his staff would look like the pedigree of a grand-champion animal. Each department is in charge of a superintendent, who in turn has foremen and sub-foremen. Ten or more camps are maintained at different places on the property, a complete commissary department maintaining high-class mess halls and other accommodations for the help.

I made inquiry concerning the mechanical aids of the Sutter Basin Company. "We do maintain a great deal of machinery and other equipment," said the superintendent. "But our policy has been to contract among the people of this district as much of our work as possible. This encourages individual enterprise, makes more prosperity for the community, and in some cases at least has proved more profitable to us than the maintaining of special equipment to do the work ourselves."

Similarly, the company farms none of its land on a rental and crop-share basis, the cultivated area, therefore, exceeding that indicated by the above acreage. In fact, officials estimate that 18,500 acres of the Basin will be cultivated under the company's direction this year.

### Big Men in Big Work

Sutter Basin is a wonderful example of what can be accomplished by a combination of science, capital and business ability. The men who constitute the organization are specialists in their lines. George B. Robbins, president, is a financier and business manager with a lifetime experience in big affairs. Until recently he was vice president of Armour & Company, Chicago, and was president of the Armour Car Lines.

George F. Maddock, engineer and vice-president, needed only financial backing to carry out his big ideas. W. E. Gerber deserves perhaps the most credit because it was he, among all the local residents, who first visualized the possibilities of the tule swamp. And he it was who succeeded in interesting the capital that has made the accomplishment possible.

(Continued on Page 27)

*—And Here Is the Harvest!*

# PRACTICAL POINTERS IN FEW WORDS FOR BUSY FARMERS

**Walnut Grafting**—This is the time! The scions should be selected now and placed carefully in a cool spot. If necessary, they may be buried in moist sand or sawdust. As soon as the buds begin to crack open, the work may be done. The wound should be well waxed, and the limb wrapped with a strip of soft cloth for several inches down. Then wax the cloth. Repeat waxing in about two weeks to keep incisions air and water tight.

**Time to Get Gophers**—Bisulphide every gopher hole after the ground has had a good soaking. As soon as spring is really here, Mr. Gopher will be on the job. See your horticultural commissioner regarding waste balls and bisulphide. Allow all charges several minutes before igniting. Repeat in a few days, with a double dose for any holes that have been reopened. The third charge usually destroys even the "oldest inhabitant."

**Successful Alfalfa Weevil Control**—Many ORCHARD and FARM subscribers in the Northwest have had experience with the dread alfalfa weevil. Seven years of tests have proved that this pest can be destroyed at small cost by spraying with arsenical solution. Full information in Farmers' Bulletin 1185, obtainable from Division of Publications, U. S. D. A., Washington, D. C.

**Insects and Hog Cholera**—It has been known that some birds, particularly carrion eaters, such as buzzards, carried hog cholera germs. Only recently, however, have experiments disclosed that insects such as the house fly and stable fly are carriers of this dread plague. Still another reason for screens and sanitation!

**Test for Distinguishing Pure Butter**—The following method, known as the spoon test, given out by the Department of Agriculture, easily can be employed by anyone in the home. Place in a tablespoon as much butter as will fill an ordinary teaspoon, holding it over a flame. As it melts, stir with a splinter of wood. Bring to a brisk boil. Adulterated butter will sputter, as a mixture of grease and water does, and will produce little or no foam, while genuine butter will boil with very little noise and produce an abundance of foam.

**How Much Water for Rice**—That five acre-feet of irrigation water annually is sufficient for Sacramento Valley soils most suitable for rice growing is the conclusion reached by rice irrigation experimenters of the California College of Agriculture. It is stated also that over a period of years the yield of rice from fields kept submerged to maximum depth may not be enough greater than with less depth to justify the extra cost of water.

**Babcock Test Hint**—One factor in accurate testing is to secure a fat column that is clear, golden-yellow and free from sediment. In the first place, it is necessary to use acid of proper strength which is free from foreign matter and water-white in color. The temperature of both milk and acid at the time of mixing should be between 60 and 70 degrees F. More difficulty is experienced in obtaining clear tests with milk than with cream. The best results are obtained if the bottles are placed in the tester immediately after the acid is added, and whirled as quickly as possible. Furthermore, the tester should run as smoothly as possible. An unsteady tester agitates the liquid below the fat column, tending to draw the sediment into the fat. It is also important when making a test to add hot distilled or soft water twice. Finally, the tester should be placed in a water bath of 130 to 140 degrees F. for about 10 minutes. Careful attention to these details usually results in a clear test.

**Corn Stover Silage**—Good silage can be made from dried corn stalks, providing plenty of water is added at the time of ensiling. It even has been claimed by some persons, particularly manufacturers of husking and silo-filling machinery, that stover silage equaled in feeding value the regular green corn product. Definite experiments with dairy cows have shown, however, that stover silage is worth only 61 per cent as much per ton as normal corn silage. This figure is based on its feeding value as evidenced by relative milk production. Corn stover silage, nevertheless, is a valuable and economical feed, the dry corn absorbing about 73 per cent of water, which is nearly the same amount found in normal corn silage.

**Motor Truck as Tractor Substitute**—When his tractor broke down and he was confronted with the task of disking a field before his young citrus trees arrived for planting, William Berkenstock of Fullerton, Cal., used a 3-ton, 4-wheel drive truck to draw his tractor disk harrow. Attaching the disk to the rear of the truck by means of chains, he covered the entire field in short order and had the ground in good shape for planting by the time the trees arrived.

**Interesting Plant Breeding Experiment**—An important discovery is announced by a scientist who has been experimenting with soy beans. As a result of careful selection he has developed two distinct strains, one a very high and one a very low content of oil. Strangely, the higher oil content characterizes a dwarf type of plant.

**Better Tuberculin Tests**—Realizing that the ordinary subcutaneous method of injecting tuberculin results in many misleading reactions, veterinarians have tried various other methods, recent experiments indicating the superior value of the combined sensitized ophthalmic and intradermal tests. The former is an introduction into the eye; the latter an injection directly into the skin. The intravenous test, by which the tuberculin injected directly into the veins results in very rapid distribution throughout the body of the animal, while satisfactory in some ways, was open to criticism because of the fact that animals which later showed tuberculous lesions failed to react to the test.

**Care of Mature Navel Orange Trees**—As the result of a five-year experiment, the following conclusions have been reached: First, quick-acting nitrogenous fertilizers, such as nitrate-of-soda and sulphate-of-ammonia, were the only things that gave results the first year; second, the plots mulched with alfalfa or barley hay showed the greatest improvement in yield the second, third and fourth years of the experiment (but during the fifth year these trees showed a worse appearance than any others in the experiment); third, although the response to applications of stable manure was comparatively slow, the manured trees made the best appearance, and while not showing any great increase in crop yield during the second, third or fourth years, outranked any other group, both in yield and in general appearance during the fifth year.

**June Drop of Navel Oranges**—Cooperative experiments conducted by a number of orange growers have shown that the growing of early summer cover crops has reduced greatly June drop of Washington navels, particularly where attention was paid to soil moisture and cultural factors.

**How Much Water for the Farm Home?**—Farm families figuring on installation of water systems want definite figures as to probable requirements. The total number of gallons used in 24 hours by a family of four where, in addition, two horses and five cows were watered, amounted to 245 gallons. The amounts required for animals are 12 gallons per day for each horse, mule or cow; 2 gallons per day for each sheep or hog. Heavily worked horses and producing milk cows may consume 20 to 25 gallons each per day in hot weather. In the modern home the average daily requirement of water per person per day of 24 hours is about 40 gallons. By comparing these figures with engineer's or dealer's estimates of pump capacity and quantity of water available it is possible quickly to determine the plant necessary for your farm.

**Yellow vs. White Corn**—Recent experiments indicate that yellow corn is more valuable as a hog feed than white corn. The cost of 100 pounds gain on yellow corn was $12; on white corn, $13.97. The difference is attributed to a larger content of fat-soluble vitamine in the yellow corn

**Saw Dust as Stock Feed**—Picture Bossy manufacturing milk out of sawdust! Why should the dairyman worry about the high cost of bran when succulent cedar sawdust or pungent pine shavings are available at low cost? This is no idle dream. The Forest Products Laboratory of the University of Wisconsin has developed an improved process of hydrolizing sawdust with dilute acid under pressure, resulting in the converting of about 25 per cent of the dry wood into sugar. And the rest of the wood fiber or cellulose is changed considerably in physical character and solubility. Dairy cows fed experimentally on a ration including sawdust kept up their production and maintained their weight even better than when fed ordinary grain rations. The following grain mixture was given: 30 parts sawdust, 40 parts ground barley, 30 parts wheat bran, 15 parts linseed meal. The experimenters hesitate to draw definite conclusions until further trials can be carried on, but the preliminary experiments indicate that hydrolized sawdust can be substituted in part for barley or other grain in the ration of the dairy cow.

**Experiments in Shipping Bees**—That the package method of shipping bees by parcel post is entirely practical is indicated by recent tests. Bees were shipped from Southern Texas to Wisconsin and after six days in transit arrived in good condition, whereas express shipments arrived in much poorer condition, although this was attributed mainly to insufficient stores for the journey. Rapid extension of the bee industry has led to a great demand for package bees, which is believed to offer many advantages, including greater certainty of freedom from disease and more rapid progress in building up an apiary.

**Cost of Producing Milk**—Feed and labor together constitute 75 per cent of the total cost of producing milk. However, other things being equal, the cost increases as the rate of production decreases. All facts point toward the superior value of high-producing cows.

**Tenancy and Land Ownership**—That the tenant is not always the slave he is so often pictured to be is indicated by a recent survey which showed that land tenancy in an important Middle Western agricultural State in the majority of cases has been a stepping stone to ownership. However, the survey has brought out the interesting fact that five-sixths of the money required was furnished by relatives or by retired farmers of the community, without any strain on the local banks. This, many economists believe, points to a new method of rural finance. Such results without organization, it is pointed out, indicate great possibilities for beneficial use of local or community funds through directed organization of effort.

**New Use for Sweet Clover**—Sweet clover, long regarded as a roadside weed, has had a boom during recent years. Lately it has been discovered that sweet clover has especially strong feeding powers for the phosphorus and potassium from heretofore insoluble sources such as glauconite. Whether the sweet clover is grown for hay, pasture or green manure, these elements, it has been shown, are returned to the soil in a condition which makes them readily available to other crops.

**Lime Increases Availability of Phosphates**—The value of a good supply of lime in the soil to help keep the phosphates in available form has been established. Acid soils containing an equal quantity of phosphates did not produce as good results as soils sweetened with lime.

## *A Look Into the Future*

***A PROPHET is without honor unless he has some real basis for his predictions. We prophesy a most interesting number for April, and we know our calculations are sound, because we have "inside information." For example: Mr. Barnhill tells us he will send another of his striking, human-interest stories from Oregon.***

***Professor Madson promises a surprise for his concluding article in the alfalfa-growing series. Commercial and home gardeners who have been reading with so much interest George Gautier's discussions of hot-beds and plant propagation will look forward to his further contributions. (By the way, have you noticed how many of ORCHARD and FARM'S articles are timely, telling you just what to do at the season when you are most in need of the information?)***

***These are just a few "teasers" selected at random from the fascinating list of features that we are gathering together for next month.***

***Our subscribers are taking the greatest interest in the new Helpful Suggestions Contest. Many interesting articles appear in this number and we shall publish many more in the April issue.***

***We have always maintained that country folks are the "salt of the earth"; anyway, for one thing, they help one another, which is more than can be said of most city residents. Maybe that accounts for the many entries in our Helpful Suggestions Contest; our readers want to pass along the discoveries and ideas that have proved valuable to them.***

***After all, we ORCHARD and FARM folks are just one big family; ORCHARD and FARM'S constant aim is to promote genial co-operation and to foster the kindly spirit that has made it California's best-loved farm journal.***

***A tip: Better make sure your subscription has not expired. The April number certainly will be a dandy.***

# This Month in the Orchard--Timely Tips Boiled Dow

By George P. Weldon

THE interest in pruning never was greater than at the present time. Perhaps the effort which is being made generally, to have deciduous fruit growers change from a heavy, cutting-back system to a thinning-out system with little or no cutting back, is responsible for this interest. At any rate, the field workers have noticed that there is a desire on the part of fruit growers everywhere to improve their methods of pruning, and everyone seems eager to do this work in the best possible manner.

**Pruning Important But Not Everything**

While the effort to work out a system of pruning that is better than anything ever devised should be encouraged, growers should not be led to believe that too many things can be accomplished by the one operation.

Sometimes pruning is expected to bring results that could better be attained by fertilization, irrigation, cultivation, spraying or thinning, tive other operations which are all of importance in connection with orchard work.

### Truth About Thinning

Perhaps the least important of these is thinning. However, most growers know that in the case of the peach, especially, the operation is exceedingly important and success may not be possible without rather heavy thinning of the crop. Pruning is so easily accomplished, moreover, that there may be a tendency to expect too much from it.

Most of our orchard soils are in need of fertilization, and perhaps fruit fails to attain sufficient size and the trees may be undersize because of the lack of fertility and not because of improper pruning. Exactly the same thing may be true with respect to irrigation.

Pruning should be done according to those methods which have been tried and which have proven effective. If results seem to be unsatisfactory, perhaps irrigation, fertilization, cultivation or spraying will bring the desired conditions.

## Pruning Pointers

THE good pruner will pay special attention to these points: First, the kind of branches which are removed; second, the method by which they are removed.

Branches serve two main purposes. In the first place it is highly desirable to select some of the strongest, straightest and most upright branches, well placed, for the formation of the framework. Branches that have a tendency to be upright and straight are much more apt to grow large than those which are headed downward.

### Selecting the Framework

Ordinarily, six such branches are chosen to form the framework. From these six main branches there should be developed smaller fruiting branches. Unconsciously or otherwise the average pruner has a tendency to save the straighter branches in order that more symmetrical trees may be developed. In the selection of fruit-bearing branches, the best results are not attained by such a method. In other words, unusual angles resulting in very crooked branches are apt to cause a checking of growth and (while causing heavy bearing at one point) to prevent heavy production by the entire tree. The accompanying illustration demonstrates this point nicely.

The second important point in the removal of branches frequently is disregarded by pruners, and there are thousands of trees even in some of our better orchards which testify to this fact. A branch never should be removed in such a way that a stub is left. In other words, the cuts should be made just as close as possible to the main branch.

### Vertical Cuts Best

Vertical cuts always are better than horizontal cuts. The latter, which frequently occur in the removal of inside, upright growing branches, heal with difficulty if at all. The older a tree becomes the less are the chances for healing. If the pruner will remember that in the case of the removal of large branches a vertical cut always is a safe cut to make, that a horizontal cut is dangerous and that a stub is disastrous, he cannot go far wrong in doing his work.

Painting or other treatment of wounds is not very important, except in the case of older trees, when disinfection with certain materials such as Bordeaux Paste and the painting over with asphaltum or grafting wax may hasten the healing process. The greatest stress should be placed upon the manner in which a cut is made rather than the treatment after cutting.

### *Practical Help for the Orchardist*

George P. Weldon

*OUR contributing Horticultural Editor writes for no other farm journal. ORCHARD and FARM alone has the privilege of publishing Mr. Weldon's helpful, interesting articles, which appear in every issue. He also replies to the questions of subscribers. Mr. Weldon is one of the best known horticultural authorities of the West, and is now Pomologist of the Chaffey Junior College of Ontario. Formerly he was chief deputy of the California Horticultural Commission. He is the author of many important books and bulletins. ORCHARD and FARM and George P. Weldon are "at your service."*

## The Man Behind the Spray Gun

NO factor in spraying is so important as the human factor in the person of the man who handles the spray gun or spray rod.

Spraying is not an easy task. The operator who becomes proficient in this important work is one who keeps his mind on the work, who has keen sight, and who holds the interests of the grower at heart. True, he is not always to blame for a poor job, because frequently his insructions are to the effect that he should hurry in order that too much spray will not be used upon the trees!

### A Case in Point

Recently the writer was asked to observe some spraying that was being done with lime-sulphur for the control of peach-leaf curl and twig borer. It was found that although fairly good results had resulted on the lower parts of the trees, the tips of the branches constantly were being missed by the sprayers.

A tree was thoroughly sprayed as a demonstration, and the man who had been doing the work was asked the question: "Is not this job thoroughly done and does it not look better than the work you have been doing?"

To this he replied, "Yes, but it took you a long time to do it."

Hastiness in applying the spray is responsible for much of the poor work and the indifferent results that are secured. The desire to lessen the expense of the operation of course is responsible.

### Not Too Close!

Nozzles frequently are held too "close in" for the best results. The tips of trees are missed constantly if the nozzle is not held far enough back. It is a very easy matter thoroughly to coat every twig in the top of the tree with the spray, providing the operator holds the nozzle back at a distance of two or three feet from the branches.

Careful, systematic work is necessary. The sprayer who bobs about constantly from one part of a tree to another usually is an inefficient workman. The man who starts at a certain place and systematically covers the entire tree is rewarded by control of the pest that is present.

**REMARKABLE APRICOT YIELD**

THE grower should learn to distinguish fruit branches from frame-work branches. This photograph was taken in an apricot orchard. The tree carried only 5 per cent of a crop, yet this one branch, 30 inches long, held 24 uniform, large, fine apricots. The only thing, however, that would account for the heavy production of this little twig was the unusual angle at which it emanated from the main branch, growing back towards the trunk. Pruning involves a study of fruit-bearing characteristics.

## Lime Sulphur Season Is Here

THE early spring season ushers in the time for spraying deciduous trees with the lime-sulphur solution, which is the great all-around orchard insecticide and fungicide.

While it is true that all kinds of deciduous trees do not require the lime-sulphur treatment, it is true also that every kind will receive more or less benefit from a thorough application just before the buds open.

No peach grower can afford to neglect spraying with this material at the time indicated. Two pests of the peach orchard make its use practically necessary. These pests are the fungus disease known as leaf curl (Exoascus deformans) and the insect pest known as twig borer (Anarsia lineatella). Both these scourges are very generally distributed throughout the peach-growing regions of the West. In every part of California where this fruit is grown, twig borer and curl leaf are found. Therefore, spraying in the [illegible] of this fruit is the rule and not the exception.

### Powdered Lime-Sulphur

It should be done with full, dormant-strength liquid lime-sulphur [illegible] 1 gallon of the lime-sulphur to 10 gallons of water. A powdered form of this material is on the market. Apparently, when used in equivalent strength, it is just as effective as the liquid form. According to analyses made by George P. Gray, chemist of the State Department of Agriculture, it requires about 4.4 pounds of the dry lime-sulphur material to equal one gallon of the liquid.

Spraying should be done thoroughly with nozzles that break the spray into a fine, fog-like mist. Economy in the application results from having the spray broken up in this manner.

## New Chemicals

NO year passes without the addition of a number of new insecticides and fungicides to the already long list of materials for the control of insect pests and fungus diseases.

The writer would be among the last to discourage manufacturers of spray materials in their effort to find something that is better than the materials called "standard" because of long and successful usage.

The thing that will make a new spray material appeal to the fruit growers generally is economy. At the present time we have a few standard products that are known to be effective in the control of certain pests. In fact, their value is so great that they might be rated as 100 per cent efficient when the application is made in the proper manner.

Therefore, in making an appeal to the fruit grower for the use of something entirely new in the way of an insecticide or fungicide, unless it can be shown that economy will result from the use of this material, the manufacturer has little basis for his sales. And unless the merits of a spray material are well known to the orchardist it is better for him to be slowly in using it.

### Disinterested Investigation

Experiment stations throughout the country constantly are at work (without any interest in the matter except that they wish to gain the facts) in an effort to determine the merits of new products that are placed on the market. The grower will do well to wait until experiments made under the direction of competent men have proven the worth of these materials before taking up their general use.

Experiments on a small scale by orchardists themselves should not be discouraged, however. The orchardist should understand that conclusions cannot justly be drawn from experiments, unless certain trees are left in the orchard without spraying as "cheeks" with which the sprayed trees can be compared.

### Only One Sure Way

Experimenters should go slowly in drawing conclusions, and too frequently a new material is recommended after comparing the results obtained with those secured by the use of a standard material when it is not known absolutely that either of them is effective under the prevailing conditions. A few trees left without spraying off are the only means of determining this point definitely.

## Study Growth of Trees

EVERY fruit grower should attempt to inform himself by his own observations, as to the success of the pruning system adopted. In other words, trees should be examined frequently during the growing season to determine which branches are bearing the fruit and which are undesirable.

Only in this way is it possible for one to draw satisfactory deductions regarding pruning work. Hasty conclusions may be misleading. Only after the examination of a great number of trees will it be possible to arrive at any satisfactory conclusion. Growth varies under different conditions and facts that are gained in one place may not apply in another.

# Putting It Over With Oregon Clover

***Appreciating in full the economic value of the cow, nevertheless Alfred Abraham did not inherit a natural love for dairying. In this article are explained the methods he has adopted for maintaining the fertility of his Willamette Valley farm without keeping livestock. That he has succeeded—but read this unusually interesting personal story, and you will have no difficulty in deciding this point for yourself!***

By O. H. Barnhill

**Contributing Editor for the Pacific Northwest.**

FIVE cents a week for milking a cow! Seems like almost nothing, doesn't it? That's what the Abraham boys thought—all of them but Alfred, who kept pulling away at the metal fount, week after week, with the result that he always had money in his pocket, to the envy and admiration of all the other boys in the neighborhood.

When the Abraham boys were old enough to "do for themselves" they were "set up in business" on farms of their own, the industrious Alfred receiving 163 acres of the home place in the heart of the Willamette Valley, being in sight of the classic dome of the State Agricultural College, naturally he hankered for a higher education. This did not fit in with his father's ideas, however, and the ambition was abandoned. But many lectures were attended, numerous bulletins studied, and farm papers and books read, the information thus obtained taking the place, in a measure, of a college course.

### Trees Grubbed Out

Much timberland was cleared by the strong-arm method, the greater part of the trees being small burr oaks—"oak grubs," as they are called colloquially. These trees stood very thick on the ground, and the amount of labor involved in taking them out with a grub-hoe can be imagined when it is considered that on many parts there were thirty-five cords of wood per acre. Of late years wood has been so high-priced as almost to pay the cost of clearing. The stumps of occasional large trees were taken out with powder and horse-power. Part of a ten-acre wood-lot is still in the process of being cleared.

### Goats Helped Clearing

Another method was to chop down the trees and then turn in Angora goats to keep the stumps "sprouted." In a few years most of the latter rotted sufficiently to render them easily taken out with a stump puller.

Abraham's nickel-a-week milking job did not engender any great love for livestock. The care of dairy "critters", as he had known it, was very confining, keeping a man's nose to the grindstone morning, noon and night seven days in the week, 365 days in a year. In many cases—perhaps in most cases—the growing and keeping of livestock on a farm is necessary for the maintenance of fertility. If this purpose could be attained in any other way, however, Abraham felt that he would escape a lot of disagreeable, confining work.

### Fertility Without Livestock

The growing of a leguminous crop seldom pays unless it is fed out on the farm. In this particular case alsike clover has proved an exception, since the seed can be sold for enough to pay for planting and harvesting the crop. The remainder of the plant—chaff and straw left after threshing—is spread over the ground, adding fertility and humus.

### Division of Fields

The cultivated fields are divided approximately into three parts, so that each year one-third is in clover, one-third in spring grain and one-third in fall grain. No matter how unfavorable the season, one of these crops usually is of profitable proportions.

Eighty acres of adjoining land, of which about one-half is in cultivation, has been rented, one-third of the crop being given for rent. The uncultivated part of the eighty is mostly in timber and furnishes summer pasture for fifty sheep, part of which are purebreds. These wiry little "woolies" require little attention at most seasons. They are dipped once a year for ticks, tagged whenever necessary and given extra care at lambing time, the lambs being docked at an early age. The clover fields furnish excellent pasture during the late fall, winter and early spring.

Four heavy work horses, a milk cow, one brood sow and 200 Leghorn hens comprise the remaining livestock on the Abraham ranch. A heavy tractor does most of the plowing and spring-toothing. For general field work the spring-tooth harrow has been found far superior to the disk.

**GIRLS, HERE IS SOME INTERESTING INFORMATION!**

**FEMININE readers will be surprised and possibly interested to learn that the owner of this fine farm and home is still unmarried, although about 35 years of age. He neither smokes, swears, drinks nor gambles, and is well liked by his neighbors. He owns a fine piano, has an unusually good tenor voice, and sings as well as plays. He drives a six-cylinder car and is fond of social diversions; is a good dresser; has a ready wit, and is kind and courteous. The housework is done by the wife of the man who helps with the farm work.**

### Low Labor Costs

Only one man is employed, except during clover hulling and for a few days during the harvest season. Grain threshermen furnish a complete crew, threshing the grain from the shock. All the grain is sacked as it comes from the machine, and most of it is hauled at once to market by auto truck. Straw piles are burned immediately and the stubble clipped with mowing machines to prevent tar weeds and other plant pests from going to seed. Sometimes all these operations are performed and the fall grain field left smooth-sheared and covered with a coat of green clover before some of the neighbors have gotten rid of their straw piles, stubble or even sacked grain.

### On the Job Early

This forehandedness characterizes all of Abraham's farming operations. He and his brothers, generally are the first in the field in the spring, getting onto the ground just as soon as it is dry enough to "work" in order to conserve the moisture and get the seed in the ground as early as possible.

Clover cutting comes immediately after the fall grain harvest. In order to prevent loss of seed by shattering, the mowing and subsequent raking of this crop is done mornings and evenings, beginning sometimes as early as 3 a. m. and continuing as late as 11 p. m. Mowers are equipped with flat strips of steel fastened to the cutter-bar and curving up at the rear end, the ones nearest the machine being perhaps eight feet long and decreasing in length toward the outer end of the bar. This attachment starts the dry, dead-ripe clover to rolling and leaves it in a windrow behind the machine, where it is not trampled on by the horses in cutting the next swath, nor in raking.

### Threshing the Seed

Abraham and his two brothers, who own the balance of the home place, have a clover huller of their own, which is built much like a grain separator or threshing machine. The clover is hauled directly from the windrow to the machine by four men with teams and three pitchers. One man runs the tractor engine and another takes care of the separator, making a total crew of nine. Threshing clover seed is very slow work and consequently is expensive, two weeks' time at perhaps $75 a day being required to clean up a sixty-acre field.

Plans are being made by the Abraham brothers to build a modern warehouse, seed-cleaning and feed-grinding establishment, electrically equipped, at a central location on their land.

### Land Plaster Used

Wild hay is cut from a few acres of low-lying ground and cheat hay from two acres of poorly-drained "white" land. Land plaster is sown in the spring on the fall grain. When beans were high-priced they took the place of spring grain, clearing the ground of dog fennel and tar weed and leaving it in good tilth for fall seeding. A cultivated crop is an advantage if it can be grown at a profit, but it is difficult to find such a crop in Western Oregon. If cows are kept, corn or sunflowers for silage solve the problem.

### Has Fine Home

Four years ago Abraham built a fine, two-story, nine-room house, with hardwood floors, built-in conveniences, fireplace, bathroom, electric wiring, etc. A cement floored basement extends underneath the entire structure, with ample room for fuel—of which there is always a plentiful supply in the shape of dry oak wood. There are sinks and a stove for the laundry, and a fruit and vegetable room. Wood lifts bring the fuel to stoves and fireplace, while another lift brings the pantry supplies directly to the kitchen.

The house is surrounded with cement walks, ornamental fence and beautiful lawn. The roomy garage is nicer than most residences. The barnyard, where there are three massive oak trees, is kept free of all litter and rubbish and is mowed several times each season. A large, new poultry house, machine shop, horse barn and

(Continued on Page 40)

**THE CROP ROTATION PLAN OF THE ABRAHAM FARM**

**HERE is the three-year rotation, which eliminates livestock entirely: First year—Plow in spring and plant oats or wheat; fall plow, and drill in winter wheat; second year—sow alsike clover in February, harvest crop of winter wheat; third year—cut alsike for seed.**

**This gives two grain crops to each one of clover, the latter growing with the winter wheat and being harvested the following summer. Spring grain is grown one year and fall grain the next, the former sometimes outyielding the latter, as was the case in 1920. An equal quantity of spring and fall grain is grown each year, so that a good crop of one or the other will be harvested each season.**

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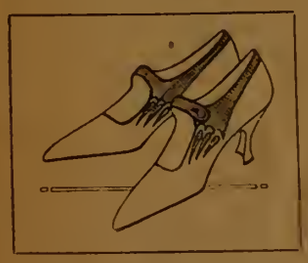

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## Cured His RUPTURE

I was badly ruptured while lifting a trunk several years ago. Doctors said my only hope of cure was an operation. Trusses did me no good. Finally I got hold of something that quickly and completely cured me. Years have passed and the rupture has never returned, although I am doing hard work as a carpenter. There was no operation, no lost time, no trouble. I have nothing to sell, but will give full information about how you may find a complete cure without operation if you will write to me. Eugene M. Pullen, Carpenter, 43-G Marcellus Avenue, Manasquan, N. J. Better cut out this notice and show it to any others who are ruptured—you may save a life or at least stop the misery of rupture and the worry and danger of an operation.


# What You Should Know About Promissory Notes

By Willard G. Cram

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THIS discussion will be confined to but two forms of negotiable instruments: Promissory notes and checks. A great many States have adopted what is known as the Uniform Negotiable Instruments Law, and since this law was established in California by an act approved June 1, 1917, the principles herein presented will be in accord with its provisions. Notes and checks made prior to this law of course will be governed by the law existing at the time they were made.

### Legal Definitions

A negotiable promissory note is an unconditional promise (in writing) made by one person to another, and signed by the maker, who engages to pay on demand, or at a fixed and determinable future time, a sum certain in money "to order," or "to bearer."

You will observe that a note must be in writing. And it should, for practicable reasons, be written upon good, heavy paper with pen and ink, or typewritten and signed with pen. A well-approved printed form, if provided by a bank or reputable supply house, will be acceptable.

If a printed form is used, one should take care that ALL the necessary blanks are filled in properly, such as the date, time of payment, rate of interest, place of payment, time when interest begins and address of maker.

### Deficient Notes

One not accustomed to drawing notes very often will accept a note that is deficient in some particular. It is customary to use the phrase "for value received," although a note presumes a consideration. The amount payable must be a certain sum of money, but the sum will be considered by law certain although it is to be paid with interest, in installments, with exchange at a fixed or current rate, or with costs of collection or attorney's fee in case payment is not made at maturity.

A provision that a note shall be paid out of a particular fund, such as the proceeds of a corn crop, is not the unconditional promise demanded in the definition given above.

### Negotiable Paper

The importance of the difference between a negotiable and a non-negotiable instrument is that the former carries with it legal title by endorsement and delivery, and when transferred before maturity, without reference affecting its validity.

If one takes a note that is non-negotiable and the consideration is fraudulent, the person who "in due course" and before maturity, and for a valuable consideration, is an innocent purchaser, can enforce payment of the note, notwithstanding the fraudulent consideration or even a failure of consideration.

The law does not favor excuses for not paying notes and in claiming fraud as a defense against the original holder, even this fraud must be set out and proven to overcome the presumption in favor of all notes that they are given for a proper consideration.

A "holder in due course" is one who has taken the note under the following conditions: (1) That it is complete and regular upon its face; (2) that he became the holder of it before it was overdue, and without notice that it previously had been dishonored, if such is the fact; (3) that he took it in good faith and for value; (4) that at the time it was negotiated to him he had no notice of any infirmity in the instrument, or defect in the title of the person negotiating it. This holder must be protected in law, which is to sustain the faith and credit of the commercial world and is founded in reason and justice.

### "Freak" Phrasing

If a note recites it is to be payable when the next rain falls, it is not negotiable, even though the rain does fall, as a note to pay on the happening of a contingency is non-negotiable.

Although a note should in fact contain the details set out above, it may be negotiable in character, even when not dated, or when it does not state the value given (the consideration), does not specify the place where it is payable, or states that it is to be paid in gold coin of the United States.

If no time of payment is expressed, it is presumed to be payable on demand.

A note is "payable to order" when it is drawn payable to the order of a specified person, or to him or his order.

A note is not invalid for the reason only that it is antedated or postdated (bears date in past or in future of time drawn), PROVIDED that such dating is not for an illegal or fraudulent purpose.

If a note states that it is to be payable at a fixed period after date, and is issued with the date blank, any holder may insert the true date.

### Authority to Alter

If the instrument is wanting in any material particular the person in possession thereof has a prima facie (meaning first view, being such a condition that requires some proof to rebut it) authority to complete it by filling up the blanks therein.

A blank paper delivered by the person making the signature, in order that the paper may be converted into a negotiable instrument, operates as a prima facie authority to fill it up as such for any amount. The note, in such a case, should be filled up in strict accordance with the authority given and within a reasonable time.

Delivery is necessary in order to give a note effect. Between all immediate parties, and between remote parties other than those "holding in due course," the delivery to be effectual, must be by, or under authority of the maker of the note. Once the note is in the hands of a holder in due course, a valid delivery is conclusively presumed.

### Figures vs. Words

There are certain legal rules of construction which in part are as follows: If an instrument has both figures and words, or printing and writing, and they do not agree, the words and writing prevail; thus, if the amount was written "Three Hundred and Eighty Dollars," and the figures were $350, the correct amount would be the former. Since it requires more time to write out the fixed amount than to set down the figures, this is a logical and reasonable rule.

If a note provides for payment of interest and omits the date from which the interest is to run, the interest runs from the date of the instrument, if dated; and if not dated, from the time of issue of the note.

When the instrument contains the words "I promise to pay" and is signed by two or more persons, they are jointly and severally liable.

### The "Consideration"

Every negotiable instrument is presumed to have been issued prima facie for a valuable consideration, and absence of or failure of consideration can be urged only against a person not a holder in due course. A consideration is either some benefit received by the maker of the note or some detriment (injury, loss, damage, etc.) suffered by the payee. For example, Jones owes a store bill and gives a note for it; the bill is the consideration. If Smith has a right to do a certain thing and promises White not to do it, it may be a consideration for White to give his note to Smith.

An "accommodation party" is one who has signed the note without receiving value therefor, and for the purpose of lending his name to some other person. Such a person is liable on the note, even though such holder knew at time of taking the note that the person was only an accommodation party.

If one wants to transfer only the title to a note, and not be bound to pay it on default of the maker, he should make a qualified endorsement by adding to his signature the words "without recourse," or a phrase of similar import. Such qualified endorsement, however, does not relieve him from the warrants that the note is genuine, that he has a good title, that all prior parties had capacity to contract, or that he has no knowledge that would render the instrument invalid or worthless.

### Surrender and Payment

Presentment of a note for payment is not necessary in order to charge the person primarily liable, but is necessary in order to charge the endorsers. In general, a note should be presented at a reasonable hour, on the day it is legally due, at the place appointed or at the place of business or residence of the maker or acceptor; in case of death, to his personal representative; in case of bankruptcy, to his legal representative, and should be exhibited and when paid surrendered to the person paying it.

After due presentment and demand of payment, comes "protest" and notice to all parties interested. Such protest, however, is not required except in foreign bills of exchange, and since it is technical in its requirements it will not be discussed here.

### Secondary Liability

If a person is secondarily liable on a note, he may be discharged if a prior party is discharged, by any agreement binding upon the holder to extend the time of payment, or to postpone the holder's right to enforce the instrument, unless made with the assent of the party secondarily liable, or unless the right of recourse against such party especially is reserved.

A material alteration in a note without the consent of all parties, void the note. Some alterations of course are criminal and punishable by penal statutes.

The importance of procuring a recording satisfaction of mortgages which secure notes was discussed in my article in Orchard and Farm in the November issue and the reader may refer to that article at this time.

### If Note Is Lost

Notes should be kept in a safe place where they are well preserved from theft, loss and deterioration. If a note is lost, it can be enforced by suit only when a bond is given to indemnify the maker or person obligated from any damages that he might suffer from the original instrument being found and enforced.

Oral understanding as to what the effect of a note is to be and oral agreements to refrain from collecting a note when due, are not as a rule enforceable. If you sign a note reading "One day after date I promise to pay," you had better expect to be ready to pay.

### "Outlaw" Notes

Frequently clients ask when a note "outlaws," meaning the time that the statute of limitation bars a forced collection on suit if a person pleads such statute. Within four years from the time a note becomes due is the limit for bringing suit within the statute of limitations. This pleading to avoid a moral obligation is frowned upon by right-thinking people, and if one has received value for a note he should pay it if he is able. It is a matter to be specially pleaded by way of defense and if suit is brought and the debtor does not appear (or appears and does not plead this defense) a judgment will be good, even though the period has expired for the benefit of the statute.

## When You Sign on the Dotted Line

*WHEN the fountain pen is handed you with the appeal, "Sign on the dotted line," read carefully before you write your name. You should understand not only the meaning but the legal aspect of every document. Many persons have signed what they thought were harmless petitions, only to have them produced later as incriminating evidence or a promise to pay.*

*While the man who secures a signature under false pretenses is a law-breaker, foiling him may not reimburse you for your loss. It is a general rule of law that one has read what he has signed and understands it.*

*The law does not recognize the excuse that you did not read the instrument. Inability to read, ignorance or even blindness do not justify thoughtless signing. This article contains some valuable suggestions for every one who signs his name to notes of any kind or value. Heed its warning and you may be spared financial loss or annoying inconvenience.—W. G. C.*

# Montgomery Ward & Co.

When in Portland Visit Us at 27th & Vaughn Streets

## New Complete Pacific Coast House of Montgomery Ward & Co. Now at your Service

HERE is great news for the people of the Pacific Coast! In the past Montgomery Ward & Co., has carried only a limited line of goods at Portland. Your confidence in The Original Mail Order House, expressed in thousands of orders, has caused us to build at Portland a Main House—we have just opened our new, complete Portland store, the largest building on the Pacific Coast! The new Portland store means greater service, quicker delivery and even more worthwhile savings on almost everything for your home, workshop or farm.

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THE new Portland Montgomery Ward store means shorter hauls, a big saving, and quicker delivery of parcel post, express, and freight shipments. Freight shipments from Portland reach any part of Oregon or Washington in from one to three days. Idaho shipments are completed in from two to six days; California, three to seven days; and Nevada, seven to ten days. Parcel post and express shipments from Portland reach any part of Oregon or Washington in one to two days. Idaho shipments take two to three days; California, two to four days; and Nevada, three to five days.

### Our Oakland Warehouse

Most heavy merchandise will be shipped by freight to points in California and Nevada from our warehouse in Oakland. This warehouse means a great saving in freight and express.

WE have brought this great mail order house 2,200 miles closer to you. Portland is the center of five great trunk lines, numerous electric lines, and is a shipping point for ocean transportation! This will mean that you will have high quality goods in quicker time and at lower cost than ever!

The eight-story Portland building contains 12½ acres of floor space. Its receiving platform can accommodate 18 freight cars a day. A branch post office sees that mail orders are properly dispatched. A thousand trained employes will help us live up to our primary business standard—"a square deal for the customer."

### Do YOU Know—

THAT Montgomery Ward & Co.'s new Portland house is the largest concrete structure of its kind on the Pacific Coast?

That 25,000 cubic yards of concrete have been used in its construction?

That the giant store is eight stories high, in addition to the basement, and contains twelve and a half acres of floor space?

That 18 carloads of merchandise can be shipped from the Portland plant in a single day? That a branch United States post office in the big store takes care of all orders sent by mail? That the new plant is located on a ten-acre tract?

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# EDITORIAL DEPARTMENT

## Timely Topics among Farm Folk

### Parenthetical Proverbs

To him who hath (pep) shall be given.

Everything comes to him who waits (at the head of the line).

It's a long lane that has no turning (but each turn makes the lane longer).

A stitch in time saves nine (and possibly some embarrassment).

Time and tide (and the 5:15) wait for no man.

Great oaks (and fat hogs) from little acorns grow.

It is better to have loved and lost (a short girl) than never to have loved a-tall.

### A Tractor Axiom

A CARELESS, incompetent driver can make a good tractor worthless. A good operator, on the other hand, may secure satisfactory service from a poor tractor. The human actor is the biggest factor with the farm tractor.

"I have often thought," remarked Uncle Wiseacre recently, "that a $2500 car is as much out of place on a rented ranch as a ten dollar silk shirt on a three dollar farmhand."

### Why Interfere?

GIVEN a fair opportunity and reasonable conditions, private capital will develop our natural resources. It is better so. When a natural monopoly is created, that is time enough to talk of community or Government ownership.

We have a number of natural monopolies in America which, in time, may, by their own lack of foresight, force themselves into public hands.

We have also unscrupulous corporations that have taken undue advantage of the privileges accorded them. They must be punished and regulated, just as individuals who prey upon society must be punished and regulated.

But what a mistake it is to look upon mere "capital" as an arch-criminal, greedily intent upon conquest and destruction!

America's greatest strides have been due in large measure to individual initiative and freedom from socialistic standards.

These are "dangerous days"; we are jumping at conclusions as never before. It is well to bear in mind the rights of all the people, but this is no time for hasty convictions.

Let us not be misled by the vindictive utterances of ignorant (and, often, unsuccessful) knockers. "Capital," as such, is not nearly so dangerous as soapbox reformers—and far more productive.

### To Join or Not to Join

AMERICA is a nation of "joiners." From Johnny with his Boys' Auxiliary of the X. Y. Z. and Q. to Father with his Federation of Amalgamated Societies we are becoming slaves to a new social system

"To join or not to join"—that's the question! Sooner or later the farmer and his family must make a decision, a very difficult decision. They wish to be classed with the leaders and doers; yet they must have a little time, money and energy to devote to business, education, home affairs and "just living."

How shall they make their selections?

There is one infallible test. Check over the various enterprises that now have claims upon you. No doubt you will find that the benefit received from each is in direct ratio to the time, energy or money you give to it.

If you belong to so many societies, clubs, federations, bureaus and institutes that you can devote little attention to any of them, it is time to do some eliminating.

In your zeal for community and self improvement have you bitten off more than you can chew? It is better to be a willing worker in a few movements than a useless slave to many.

### Too Many Irons in the Fire?

AGRICULTURE is carrying an overhead that sooner or later is going to topple from its own unwieldiness. Somebody must pay for the salaried executives, walking delegates and other appurtenances. Energy devoted to organization work is directed away from production.

To a certain limit, producer and consumer alike will absorb this new kind of "overhead." But eventually the pendulum must swing the other way Let us hope that the result will not be failure of many laudable enterprises that should live.

In the meantime are we not overdoing the conventions and the fervent speeches and the sizzling resolutions? If all the energy that is devoted to solving the Nation's problems on paper were directed into productive channels, many of these problems would solve themselves.

Who pays in the long run? Who pays the railway fares and hotel bills? Who pays for the lost time? Who pays for the publicity?

The farmers are only falling in line with other classes. But what applies to them applies also to all the "joiners." God be thanked for the energy, enthusiasm and enterprise of our America. But why must we overdo everything?

### Ben Gonnadooit Says

*I SUPPOSE I ought-a do more readin', but it seems like a feller is jest swamped now'days with books, bulletins, magazines an' papers. Result is, a busy man like me don't find time fer hardly any of 'em.*

*My neighbor, Brown, was tellin' me last week about a fine article on alfalfa growin' in ORCHARD and FARM. Said he got some val'able and timely hints f'm it jest when he was gettin' ready to plant a new field. But by th' time I had looked over th' last P'lice Gazette my copy of th' farm paper was lost—and so it goes!*

*Not long ago I got a fine new bulletin f'm th' Gov'ment on farm bookkeepin'. It interested me becoz I bin gonna start a system of keepin' my accounts. Well, I filed the bulletin away in a desk drawer, an' by th' time I had finished th' novel I was readin' in "Jazzy Stories" th' mice had chewed th' bulletin int' bits.*

*My wife's bin after me t' find th' mouse trap, but seems like I never kin remember it. I'd send fer another copy of th' bulletin but I've about decided t' let th' bookkeepin' go, anyway. They say it helps in makin' out yer income tax statement, but I ain't never had to pay no income tax yet, so I don't see much use of startin' somethin' that would only make a lot more work.—Ben Gonnadooit.*

### Co-Operation Has Its Definite Place

FAR from deprecating rural co operation, ORCHARD and FARM has been and will continue to be one of its strongest supporters.

But during this reconstruction period, we believe, will be evolved a process of natural elimination. Meanwhile is it too much to hope that out of the present bewildering array will spring up one all-powerful, all-sufficient organization, catering through its affiliated branches to every part of rural business and social life? Is this an idle dream, or may we anticipate one national farm voice so compelling that others will be silenced?

There are many who believe such an organization already exists and that within a very few years it will be supreme. The only way in which it can attain supremacy, however, is by never losing the personal, local contact. It must be first, last and always a federation—just as our country is a federation of States, which in turn are composed of local units.

Soon there will be a turning point. The reaction will be sudden. The more that farmers think for themselves the more will they demand unity of action and elimination of inefficiency. What they demand in unison they will get. Meanwhile, each of us may well give serious thought to his own "joiner" problem!

### Tired of Waiting

WHILE many bankers who deal with farmers give their customers real service and while many would extend this service if permitted by their more powerful connections to do so, there has been something woefully lacking in our financial system in its relation to agriculture.

"Personal rural credits" is a phrase now being heard throughout the land. Senator Kenyon proposes to wait no longer for the bankers to give the farmers the same service extended to commercial accounts. He has introduced his much discussed Rural Credits Bill, creating a new Government controlled system. Its fate will be observed with intense interest

### Tariff Comes First

"NOT how much, but how soon," is the thought of many farmers on the protective tariff question. Quick, even emergency action is demanded.

The olive, lemon, cotton, walnut and rice growers are leading the determined fight in which all agriculture is joining. America may turn her undivided attention to protection of her most important industry, food production, leaving to the farmers the responsibility of seeing that our consumers are furnished with home products at reasonable prices.

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*"The Fruit of the Tree of Knowledge"*

THE following new Government bulletins now are available and will be sent free upon request. Address Division of Publications, U. S. Dept. of Agriculture, Washington, D. C. Order by number.

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| Parasites and Parasitic Diseases of Sheep | 1150 |
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The following technical or scientific bulletins, applying to special industries or localities, will be sent upon receipt of price listed. Address Superintendent of Documents, U. S. Dept. of Agriculture, Washington, D. C.

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Many progressive farmers make it a point to send for the catalogs or booklets of reliable advertisers, considering these almost as important as official bulletins. Each month you will find many such publications, of timely interest, listed in ORCHARD and FARM. Most of these are sent free upon request.

This month, for example, there are seed and nursery catalogs and, particularly, publications of pump manufacturers. The irrigating season being close at hand, this is a very good time to consider requirements in this line. The manufacturers and dealers always are rushed when the warm weather arrives and it is not a bad idea to place orders for pumps, pipe and other equipment early in the season.

Tractors and implements also are in demand at this season. You will find many kinds advertised in ORCHARD and FARM.

The declining markets offer unusual opportunities to **save on clothing, food** products and other necessities of life. Have you ever noticed how many announcements of this nature are contained in each issue?

The man who disdains to read an ad merely proclaims his narrowness. Modern advertising is educational, and no wide-awake business man can afford to overlook the messages in the advertising columns.—The Editor.

---

**Farm Correspondence**—A subscriber writes emphasizing the importance of business-like letters in carrying on farm operations. "The producer who gives careful attention to his letters, sending out prompt, neat and (if possible) typewriten replies to inquiries, finds his care repaid in greater prosperity," asserts our correspondent. "Such letters also secure quicker and better service from manufacturers and dealers with whom the farmer trades. The ideal business letter is short and to the point, yet complete. Experience dictates a certain form which is followed by all business institutions and which makes for speed and exactness. Freak letters are of little value, except possibly in some advertising or sales campaign." No modern farmer can afford to neglect or slight his correspondence.

---

**Does a College Education Pay?**—The three-year record of John W. Flint, an Oregon Agricultural College student, contributes an answer to this question. For a year after graduation he managed a creamery at Corbett, Col., during which time he increased the daily output of butter from one ton to two and a half tons. He served in the army two years, and was promoted to the rank of second lieutenant, managing men so successfully that he was sent to Santo Domingo to take charge of a sugar plantation, and, incidentally, 100 farmers and 20 foremen. With the requirements of helpers he planted and irrigated 4000 acres of sugar cane, which is certainly a man-sized job, and could not have been successfully undertaken without a thorough knowledge of practical problems.—O. H. B.


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In answering advertisements please mention ORCHARD & FARM.

# Improving Our Dried Peaches

By Arthur W. Christie

Instructor in Fruit Products, University of California.

[This is one of a series of articles on dehydration, written especially for ORCHARD and FARM by Professor Christie. Next month the subject of "Dehydrated Pumpkin Flour" will be discussed.—Ed.]

OVER one million tons of peaches are produced annually in the United States, California alone contributing more than one-third of this vast production.

The 95,000 acres of bearing peaches in this State normally produce some 475,000 tons, the greatest tonnage of any deciduous fruit. Although the 1920 yield is estimated at only 345,000 tons, high prices caused this crop to exceed a value of $26,000,000. For several years past, 60 per cent of the crop has been canned, 30 per cent dried and 10 per cent marketed as fresh fruit.

### Work of Association

While the 1920 crop of dried peaches approximated only 24,000 tons, as compared with 34,000 tons in 1919, the main factor responsible for the early sale of the 1920 crop at the highest prices yet recorded was the excellent packing and advertising of "Blue Ribbon" dried peaches by the California Peach Growers, Inc., who control about 85 per cent of the tonnage. (At the present time, February, 1921, 25 per cent of the 1920 pack of canned peaches remains to be sold.)

The exportation of dried peaches to foreign countries, often amounting to 25 per cent of the crop, was reduced to a small tonnage during the war. Many indications point to a decreasing demand for peaches. Coupled with this, we have the complicating factor of rapidly-increasing production. Our peach growers, therefore, must not be content to rest on last year's achievements, but rather must minimize the inevitable slump by stimulating the domestic demand.

A most logical means of maintaining profitable peach production lies in the production and advertisement of high quality dried peaches. As wartime extravagance is followed by peace-time economy, excellent but inexpensive dried products proportionately will increase in demand.

### Dehydration Experiments

Although practically all our dried peaches result from the standard process of sun-drying, considerable interest has been manifested recently in the application of dehydration to peaches in the expectation that a better quality product would result.

At least one California dehydrating plant successfully has marketed a limited tonnage of dehydrated peaches, while several carloads of California peaches were dehydrated in Oregon, and subsequently sold in the East.

As part of the general investigation of the dehydration of all deciduous fruits, carried on by the Fruit Products Laboratory of the University of California, some six tons of Muir peaches were dehydrated in the University Farm Evaporator last August.

### Fruit Carefully Selected

Profiting by the previous experience with apricots, we used only fully matured fruit. The peaches were not picked until soft and fully colored, containing the maximum amount of sugar and flavor. In this condition the fruit was ideal for dehydration but too soft for canning or fresh shipment.

The three by three-foot slat bottom trays, holding an average of three pounds of cut fruit per square foot (weight of pits included) were used. Most of the peaches were sulphured several hours, although subsequent tests indicate that one hour is sufficient.

(Continued on Page 31)

***A Contrast in Fruit-Drying Methods***

***Above is shown an ordinary dry-yard. Dehydration does away with this waste of space and permits of a saving in time and equipment. Below, a car is being loaded with dehydrated fruit at the University.***

## George Collins' Big Idea

THE phrase, "Power on the Farm," has become familiar to everyone interested in California agriculture. It was used by George Collins, manager of the California Tractor & Implement Association, as a trade-mark or slogan for this organization. Now Collins is working out his "big idea" a power-on-the-farm trade association to include not only all the tractor dealers, agencies and manufacturers in Northern and Southern California, but also the implement, pump and household machinery manufacturers and dealers and all others contributing to power farming in any form. In an early issue, ORCHARD and FARM hopes to publish a more detailed report of the new organization. Its inauguration will be of great benefit to farmers.

## Money in Cavies

SURPRISING returns are being secured by many breeders of guinea pigs, or cavies. Their reputation is not due entirely to the publicity given them by Ellis Parker Butler in his famous story, "Pigs Is Pigs." At present they are said to be in demand in great numbers, being used experimentally by scientists and research laboratories.

There are several different breeds, including the English, Abyssinian, Peruvian and the Peruvian Silkey. The English Smooth Hairs are most common and greatly in demand for laboratory use. They are found in almost any color, usually mixed. They are used in much the same manner as white mice and rats, principally for testing serums.

Cavies are raised with little expense. They may be kept in ordinary boxes and will eat grass and many weeds. They relish also dry hay and small grains. They have been known to go entirely without water when fed plenty of green stuff. They are subject to few diseases.

Perhaps the aforesaid Mr. Butler is responsible for the general belief that cavies multiply at fabulous rates. This is not exactly true. Litters of three or four are most common, although frequently there are four litters a year. Even a boy can keep up to 100 guinea pigs with little trouble. Laboratories pay from 50 cents to $1 each. Reliable firms furnish breeding stock and agree to buy all that are raised. Fancy kinds are exhibited at shows and sometimes sell for $10 or more a pair.

## How to Make Your Hens Lay Twice as Many Eggs

and keep them working overtime in the egg laying business; it is so simple, and the results so wonderful, that I want every one keeping poultry to try this plan at once and get two to four times as many eggs as formerly. I have discovered a simple, practical, easy method that quickly starts hens laying eggs so fast, winter or summer, that it is something simply wonderful. I will gladly send you this valuable secret, also one of the best receipts ever discovered for easily and successfully preserving fresh eggs 8 to 10 months without spending a cent; also splendid receipt for easily, cheaply and quickly destroying all Mites and Chicken Lice, all sent you free by return mail if you write quick, enclosing self-addressed envelope. Mrs. Jackson, Route 1, B117, Farmingdale, South Dakota.—Adv.

## "Flivver Starter"

[illegible] cold morning, when the Ford refuses to start, jack either of the [illegible] rear spark and take off [illegible] the prime cur[illegible] as usual.—Charles [illegible] (H.)


# CALIFORNIA WONDER CORN

The above photo reproductions show California Wonder Corn, the great new corn that produces 3 to 12 ears per stalk, in detail, also a field scene after husking—note the large number of husks remaining on the stalks. Many were broken off during husking. This piece of corn averaged SIX EARS PER STALK. Over 300 bushels per acre. I am now selling corn grown directly from this same stock. You can buy the stalks, ears all on them, with 3-4-5-6-7-8-9 and 10 ears on each stalk, and priced according to quality. You are sure to make big money if you start now. Ten years of highly successful development by the selective process from the original 5-ear "sport" stalk has made enormously high producing qualities a fixed habit of California Wonder Corn and is your guarantee for SUCCESS and BIG PROFITS. A few dollars starts you in this BIG MONEY CROP. Seed for sale shelled, on the ear and STALKS WITH THE EARS ALL ON THEM.

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| ¾-inch Standard Black Pipe | 1¼-inch Standard Black Pipe |
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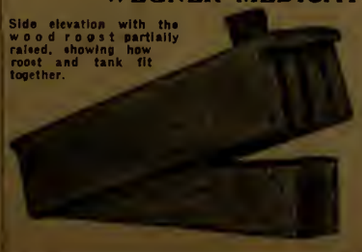

Side elevation with the wood roost partially raised, showing how roost and tank fit together.

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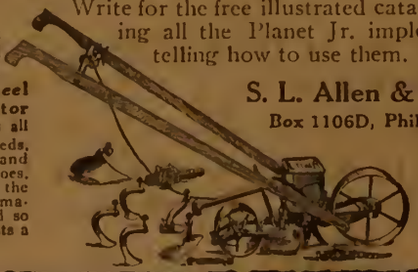

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# A Bit About Breakfast Nooks

By William Draper Brinckloe, Farm Architect

(Written Especially for ORCHARD AND FARM.)

"OUR salesmen told us we were crazy—just plain crazy," said the Chief Architect.

"Why so?" I queried.

"Because in our new plan-book we worked breakfast-nooks into several bungalows." He tapped a cigarette on the back of his hand, and grinned. "Yes, plain crazy—until the orders for those plans and that breakfast-nook millwork began to flood in!"

"Then the breakfast-nook is popular?" I asked, doubtfully.

"One of the most popular things I ever drew!" he shot back at me.

Now, all this was several years ago, and I didn't quite believe him at the time. Since then, however, I have studied thousands of sketch-plans, sent in by farm women all over the United States, and what a lot of breakfast-nooks there were!

But wait a moment! The regular Eastern breakfast-nook may or may not be the right thing for California farm and ranch homes. For instance, many Eastern farm-houses have a nook built right into one corner of the kitchen (Figure 1), so as to get the full warmth of the cook-stove, when breakfast must be served in the bitter gray dawn of a zero morning.

### "To Nook or Not to Nook"

***SHALL we include a breakfast nook in our new bungalow? This is an important question in the minds of many prospective builders. One who has used a breakfast nook says he would not be without it. Another describes it as a failure, stating that the seats are hard and uncomfortable and the walls frequently damp with condensed moisture. Seats, however, can be cushioned and the latter objection may be overcome by constructing the backs of the seats of wooden ceiling with a lining of insulating felt between the backs and the studding. Subscribers should bear in mind that the farm bungalow offers different problems from those encountered by city builders. This discussion by a specialist in farm architecture therefore should be of practical help and timely interest.—Editor.***

### A California Style

We don't need that on the Pacific; therefore, let's look at Figure 2. The breakfast-nook in this case is built out, bay-window fashion, a very much better arrangement. In the rainy season there will be ample warmth from the kitchen range, while in the summer time, if there is any breeze blowing, the open windows will keep the breakfast table delightfully cool. Best of all, this plan doesn't cut up the kitchen.

The exact size of the nook will depend upon circumstances. If you purchase ready-made millwork, of course you must build the nook to fit; otherwise, you can make the benches 16 inches wide, the table 2½ feet, with 3 inches between table and bench, at each side; a total of 5 feet 8 inches. The length of seats should be about 21 inches for each person; so a 3½ foot bench will hold two people. Therefore, a nook 5 feet 8 inches by 3 feet 6 inches will accommodate five people in all, provided the table is made rather longer than the benches.

### For the Older Home

But maybe your bungalow is already built; what then? That was my situation when I bought my California home. There was no breakfast-nook and no way of building one, unless I tore things all to pieces. Yet my wife insisted that something must be done, using the dining room for every meal meant a lot of extra work and extra cleaning (since it was right in plain view of the living room, and any guests would be just sure to see the dirt and crumbs on the floor). Eating in the kitchen wasn't practical, the table and chairs crowded the room, and were in the way between meals, especially if ironing, canning or other extra work was being done. Then I thought of my Maryland home with its cool breakfast-porch looking out over the Peachblossom River, and I built just such another porch, looking out over San Diego Bay.

I set it on the rear of the house, where it gets the cheery morning sun. Figure shows how I have planned it. The width is 7 feet, but it is fairly long; one end holds the refrigerator and washing machine, serving as a kitchen porch. The front is open, from floor to ceiling, but screened with fly-netting. When the rains come, removable glass sash are slipped in. Across one end a 16-inch bench is built.

### Furnishing the Porch

For the furniture we bought a battered second-hand extension table and some dingy chairs; a little olive green carriage paint made these better than new. The bench is green also, the walls and ceiling are white.

On a porch like this I think most of the furniture should be movable, so as to accommodate a larger or smaller household, as guests come and go. But with a regular breakfast-nook, I prefer fixed equipment; chairs and walls get knocked and dinged, in such a small space, and one doesn't feed guests there, anyway.

Our porch doesn't get any heat from the kitchen, but no matter. On a foggy morning a portable oil stove

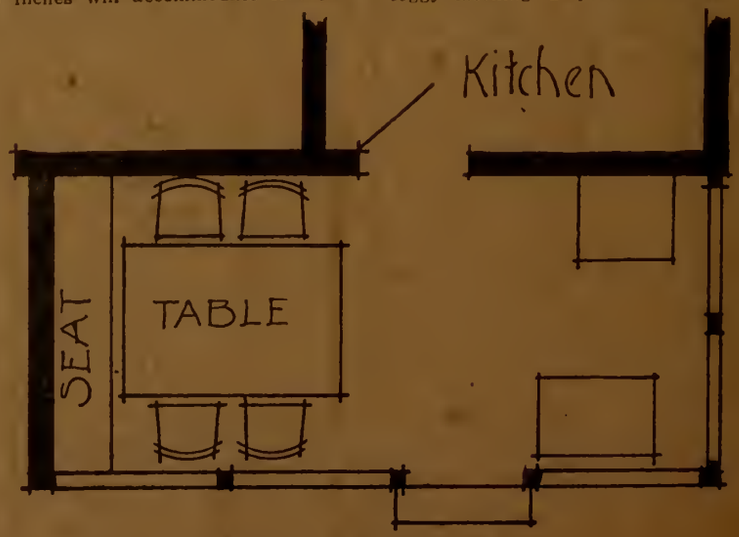


FIGURE 3.

[illegible] thing comfortable. Rain or [illegible] we find this porch a very joy!

[Additional Notes—The height of the table is an important consideration. Many breakfast nooks have proved unsatisfactory because the carpenter or [illegible] constructed the table and chairs without considering this point.

A sure and easy method of solving the problem is to build the table top

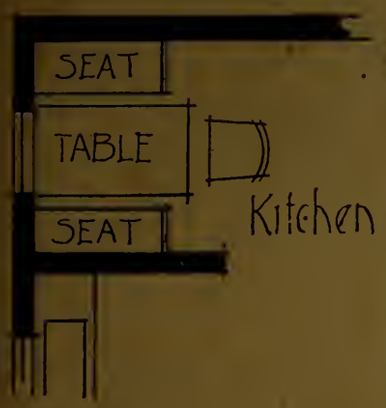


FIGURE 1.

at the same relative height above the bench as the top of an ordinary dining table is above the seat of the dining chair.

Another point to be considered is the provision of proper outlets for electrical fixtures. This will be determined largely by the house plan and will depend also upon window space.

In many breakfast nooks it is advisable to have both a ceiling dome-

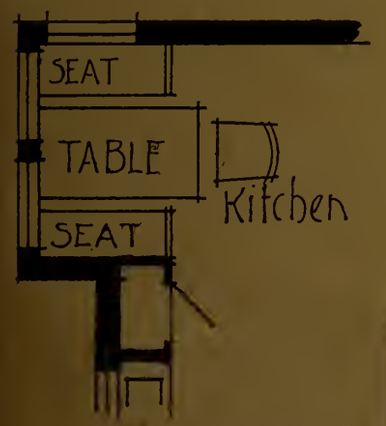


FIGURE 2.

light and an outlet above the table, the latter being very useful for attaching the toaster or percolator.

It is a great convenience to have an outlet especially for these breakfast utensils so that they need not be detached each day.]

## Better Farm Chimneys

ALL farm building chimneys should start from the ground. Those [illegible] on brackets are unsafe and often increase the rate of insurance. In a properly designed, moderate size house, one or two chimneys, each containing several flues, will serve every purpose. If possible, a flue should be provided for each stove, as better results are thus obtained.

The chimney should have a solid foundation of brick or stone, and if of brick, an extra footing laid. The exterior walls should be two bricks thick and the division walls one brick thick. The chimney is lined with one of the [illegible] fire-clay linings now on the market, one brick will prove sufficiently thick for the exterior walls.

When it is necessary to carry a [illegible] any considerable distance in a partition to reach the chimney, [illegible] thimble should be used, [illegible] pipe passes completely through a partition it should be provided with a ventilated thimble.

[illegible] should a chimney in a closet [illegible] the necessity of [illegible] be avoided.


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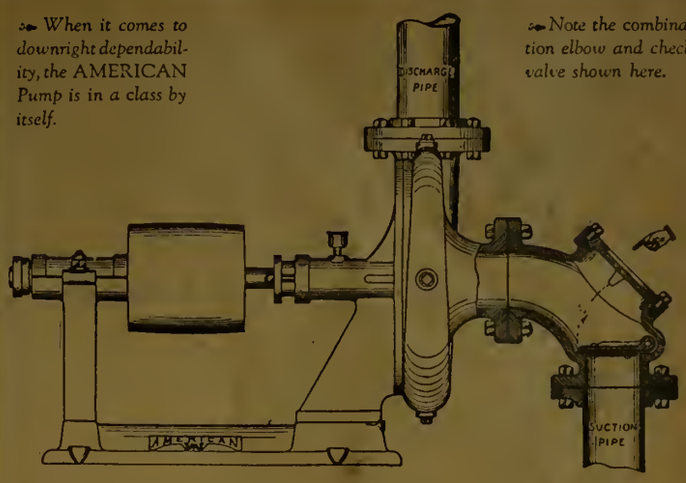


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The DIENER TOMATO is blight-resisting as well as drought resisting. It will not crack from the rain and will not rot while lying on the ground in wet weather. This tomato will grow in almost any kind of soil and it commences to ripen the first part of August.

It is the greatest novelty in the tomato line, and it will soon crowd out the present varieties from the market by its far superior qualities.

**Price of the DIENER TOMATO SEED: Sample pkg., 25c; one-quarter of an acre pkg., 50c; one acre pkg., $1.50.**

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# Buttermilk From Skim Milk

***Skim milk is valuable for other things than feeding poultry and hogs. From it may be made a delicious buttermilk. ORCHARD and FARM is indebted to the De Laval Separator Company for much of the information contained in this interesting and helpful article.***

MOST readers will think of buttermilk only as the product left over when butter is churned. However, it is pointed out by S. E. Barnes, recently connected with the Dairy Division, United States Department of Agriculture, that the character and quality of buttermilk are not due to the churning but to the lactic acid organisms that it contains. What counts most, he asserts, is not the presence of butterfat, but the proper development of lactic acid-producing germs, which bring about wholesome fermentation of the milk.

Ordinary Barrel Churn

This dairy authority shows that there is little difference between skim milk and buttermilk so far as food value is concerned. The difference is largely physical, he says, and when properly handled unappetizing separator skim milk easily can be converted into delicious buttermilk.

### A Valuable Food

That this practice should be more general is indicated by the statements of physicians and authorities concerning buttermilk, which not only is a healthful food substance, but also is believed to prolong human life. Authoritative and complete information concerning the making of skim milk buttermilk is available.

First, the whole milk is run through the cream separator. By six steps the skim milk is changed to buttermilk.

1. The foam is removed from the skim milk and the product aerated.
2. It then is thoroughly cooled and kept cold for 12 hours.
3. At the end of 12 hours the skim milk is warmed to 70 degrees, in order that it may sour or ripen.
4. After ripening, the milk is again cooled and kept so for 12 to 24 hours.
5. It is then thoroughly churned until the clabber is broken up and the milk becomes smooth and creamy.
6. It is then withdrawn from the churn, strained and cooled.

The drum cooler, which is cheap and convenient for use in making buttermilk.

(It is recommended that the buttermilk be kept as cool as possible until used.)

### Aerating and Cooling

An ordinary dipper may be used for skimming off the foam, or if the container is provided with a faucet at the bottom the contents, after settling, can be drawn off, leaving the foam in the receptacles. Cooling is accomplished by running the contents over an ordinary drum cooler. The next step is to set the milk in spring water, on ice or in a cool, clean cellar. If no cellar is available, the cans may be lowered into a well or cistern, or the "California cooler" system may be used, whereby the evaporation of water from wet cloths lowers the temperature. The milk must be cooled immediately after separation and kept cool for about 12 hours.

### Ripening the Milk

After 12 hours of cooling, the skim milk is warmed to 70 degrees and allowed to sour. In summer, artificial heating may be unnecessary. The addition of a quart of hot water to every four gallons of milk is one means of bringing about fermentation. In any case, the milk should be stirred occasionally while the temperature is being raised, and allowed to remain at 70 degrees for about 12 hours.

The milk should not be churned at this stage but again should be cooled down to 60 degrees and allowed to ripen for about 24 hours longer. It then will be ready for churning, but the clabber should not be broken until it is put into the churn.

### Churning Is Next

The clabber must be broken up thoroughly, churning for 20 or 30 minutes usually being sufficient. In fact, if only a small quantity is handled the clabber may be broken up with a wooden dasher while it is yet in the cooling can in which it was ripened. In either event, the buttermilk should be strained after it is taken from the churn. The churning and straining may be combined, simply by pouring the buttermilk through a strainer from one can to the other.

### Handling After Churning

The buttermilk should be marketed soon after churning in order to avoid danger of recurdling and should reach consumers while fresh. After churning and until delivered, keep the buttermilk cool. Wet blankets or ice cylinders accomplish this purpose. All utensils should be kept scrupulously clean; otherwise undesirable fermentations will result.

### Method of Ripening

In the event that it is desired to ripen the milk more quickly, a starter may be used. To secure a desirable starter, set away a portion of skim milk after it has been cooled and aerated, leaving at a temperature of 70 or 80 degrees for 24 hours until it forms a solid curd. If the taste of this curd is pleasant and mildly acid and if it breaks up readily when poured, becoming creamy and showing no hard lumps that will not break down, it is a good starter. A glass jar is the best vessel in which to make a starter. Neither gas bubbles nor whey should be present. If either appears the starter should be discarded.

When it is certain that a good starter has been obtained, it may be maintained from day to day by putting a small amount of it into a five-gallon can of pasteurized skim milk and allowing it to clabber in the same way. This process will furnish enough starter for ripening a considerable amount of skim milk each day.

The starter should be added at the rate of one quart to every three gallons of milk and be thoroughly mixed with the milk, after which a temperature of 70 degrees should be maintained for 12 hours. After cooling, it should be kept 12 hours longer. If the starter is used it must be handled carefully. Some dairymen use commercial lactic acid ferments which may be purchased at a reasonable price and used successfully, if instructions are followed with care.

### Successful Farm Method

As an example of the simple method pursued by one farmer who has a cool spring on his place is offered the following: The milk is run from the separator into straight-sided "shotgun" cans holding about four gallons each, the foam being skimmed off with a dipper. The cans are set in cool spring water for 12 hours, after which they are allowed to remain at the springhouse temperature of about 70 degrees until the milk clabbers, or about 24 hours. Then the cans are returned to the water and allowed to remain 12 hours before churning, making the milk 48 hours old when ready to use.

A suitable can for use in drawing skim-milk from beneath the foam.

In winter one-half pint of hot water is added to each gallon of skim-milk at the time of first taking the milk out of the water. After the milk has soured sufficiently it is

(Continued on Next Page)

churned in the cans with a wooden masher.

### Another Good Method

Another successfully used plan is as follows: First, the skim milk is drawn from beneath the foam by means of a faucet at the bottom of the can; then the milk is cooled for several hours in a trough, through which there is a constant flow of spring water. It is then warmed to 70 degrees and a starter added at the rate of two quarts to each six gallons of milk. The cans then are placed in a home-made insulated box, which is a dry ice box with wet blankets spread on top of the cans under the lid. When clabbered, the milk is put back into the cool spring water, where it remains at a temperature of 50 or 60 degrees for 12 hours longer. Then it is churned with a dasher or in a barrel churn for 20 or 30 minutes and, being delivered at once, reaches the consumer when 36 hours old. A better product results, however, if less starter is used and the milk allowed to remain in cold water about 12 hours longer before being churned.

The "shotgun" can is convenient for ripening skim milk.

A cheap and convenient strainer, useful in making buttermilk.

## Goats on a Mountain Ranch

NORTHERN Mendocino and Trinity Counties are ideal for goat raising. The climate "can't be beat" and, as the goats prefer rough, brushy land, they do exceptionally well here in the mountains.

I live upon a 320-acre ranch, heavily timbered with white and black oak trees, manzanita brush, hazel brush, poison oak and other trees and shrubs. The elevation is from 2000 to 3500 feet.

Have had the finest luck with my Angora goats. They are good browsers and stay fat and in good health the year 'round. The land is practically unfit for any other use. The goats have the run of the ranch, and do not require much attention. They are able to protect themselves from coyotes.

I have sheds for them to use in stormy weather, as they don't like to be wet. In case of bad storms, I feed them a little hay, which I raise myself, and also cut some oak trees on which they can browse without going far from shelter. Salt is the only thing I buy for them; therefore whatever I make is almost clear profit.

The one drawback is that I have no market for the wethers, but I manage to sell a few to different persons who pronounce the meat excellent. My wife also milks some of the nannies, and makes butter from the cream. The butter is white, and to my mind is as good as cow's butter.—Ed Smaelen, Island Mountain, Trinity County, Cal.

## Do Milk Goats Pay?

IN goat breeding circles the story is going the rounds of John Salopek of Texas, who, after falling in the poultry business, borrowed $350 with which to purchase native Mexican milking goats. After a few years he has repaid his loan, owns 200 goats, three city lots and full equipment for care of the herd and delivery of milk, and has $600 in cash. Moreover, his living expenses have been paid for three years, and he has developed a valuable demand for his products. Many Texas city babies owe their lives to the milk from his goats, it is said.

**Unequaled**—"Orchard and Farm has no equal in the West, or elsewhere, for a first class agricultural periodical."—Clair C. Cook, Eureka, Cal.

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PRICES for dairy products have held firmly, while the cost of feed has been greatly reduced. Because of this there is relatively more profit than ever in dairying, and many farmers are turning low-priced feed into high-priced butter-fat. An eminent dairy authority says that you can make corn worth $2 to $3 a bushel by feeding it to good cows.

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Feed dealers, druggists and general stores sell Kow-Kare; 70c and $1.40 packages.

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## Don't Feed the Horses by Guesswork

DO your work horses, brood-mares and colts receive the proper rations? True, no arbitrary rules may be adopted; the successful horseman is the one who studies his animals and feeds them according to individual characteristics and requirements. But it must be admitted that many horses are fed with little thought of their real requirements.

Members of the ORCHARD and FARM family will find it interesting to compare their present feeding methods with those suggested in the following report, made public as the result of a series of experiments:

The demonstration showed that draft horses averaging in weight approximately 1600 pounds, which did 4.8 hours a day average farm work, required an average daily ration of 14.91 pounds of grain and 17.12 pounds of timothy hay.

That brood mares may be used efficiently for farm work, but the yearly feed required by them is 26 per cent greater than the cost of feed required by gelding or "dry" mares doing the same work.

That brood mares working and nursing foals require 47 per cent more grain and 32 per cent more hay daily during the suckling period than dry mares.

That foals during the suckling period consumed an average daily ration of 5.38 pounds of grain and 1.35 pounds of hay, in addition to their mother's milk.

That draft colts consumed an average daily ration of 6.68 pounds grain, 7.42 pounds hay daily from weaning time until they were turned on pasture in the spring, a period of 219 days, during which time they gained 330 pounds and weighed at the close of the period 836 pounds.

That it required 4.40 pounds of grain and 4.83 pounds of hay to produce one pound gain on draft colts from weaning time until turned on pasture the next spring.

That in using a grain ration composed of 2 parts corn, 2 parts oats, 1 part bran, it required 10.46 bushels of corn, 18.30 bushels of oats and 292.9 pounds of bran, to keep draft colts in good growing condition from weaning time until they were turned on pasture.

That 15 pounds of corn silage, 8 pounds oat straw, fed with 8 pounds grain is a satisfactory ration for horses doing light work during the winter months.

How do you feed and manage your horses? What rations do you give for economy and efficiency? We would like to hear from some of our subscribers. Let's "swap" ideas on horse-feeding. Write the editor about your methods.

## Does It Pay to Raise Dairy Calves?

"OH, they're too much trouble."

With these words Johnson dismissed my inquiry as to why he preferred to "veal" his dairy calves.

"It is easier to get rid of the little critters and buy new heifers when I need them," he added.

There are a good many "Johnsons" in the dairy business. But there is a growing sentiment in favor of building up the dairy herd with the best calves born within it. In fact, many advocates of this method claim it is not only the best but the cheapest way.

The advent of the cream separator largely is responsible for the increased raising of calves. Experiments have shown that calves may be raised on skim-milk auppiemented with grain or calf-meal, at almost one-fourth the cost of feeding whole milk, and at about one-half the cost of allowing them to run with the cows. Moreover, steer calves fed on skim-milk frequently make faster gains when being fattened later on than those raised by other methods.

Here are some valuable, boiled-down pointers on auccessful calf rearing:

Whole milk very often is too rich a food for proper digestion by the calf as a regular diet.

It is best, however, to feed the calf whole milk for the first week or two, as the first milk acts as a mild laxative and has a stimulating effect on the calf's digestive organs.

Whole milk from the Jersey or Guernsey, if very rich, should be diluted. About 10 pounds should be fed daily, in three feeds—4 pounds in the morning, 2 at noon and 4 again at night. Calves from other breeds, being of larger size, should be fed a little more milk, which, on account of being less rich in cream, seldom will require dilution.

After ten days or two weeks substitute skim-milk and grain ration. A good daily ration for the average calf is about 8 quarts skim-milk, 3 pounds hay, 18 or 19 ounces linseed meal, 24 ounces ground oats, or 21 ounces of corn meal, and about an ounce and a half of flaxseed. The grain ration is to take the place of the butter-fat in the whole milk and, of course, shows a great saving over the cost of butter-fat.

Milk always should be fed to the calf warm, at a temperature of 90 to 100 degrees, and should be clean and sweet. Most calf troubles are caused by the unsanitary condition of the pails in which they are fed. Calves should never be fed in a trough.

When serious scouring takes place in young calves, the trouble usually may be checked by adding one teaspoonful of dried blood to the milk ration. Sometimes the addition of common wheat flour in the milk is effective.

Calves should have access to good drinking water, should be provided with clean, comfortable quarters and should be protected from flies in the summer time.

Repeated experiments show that calves may be raised better and much more cheaply on separator skim-milk, with a proper grain ration, than by feeding whole milk.

Don't overfeed the calf.

Calves always should have access to salt.

Wherever possible provide pasturage for the young calves.

## Timely Advice for Milk Goat Raisers

By Dr. J. F. Farmer

THE food value of goat's milk has been set forth in many well-written articles, and the most incontrovertible and convincing point is that weak children and invalids can digest and thrive upon this food when all others fail to nourish. Goat's milk has prolonged and saved many lives.

The reason why goat's milk is more easily assimilated is because the curd formed when it enters the stomach is tender and easily broken up by the least pressure, while the curd from cows' milk is tougher and resists pressure more persistently. The fragibility of the curd also makes it more easily reached by the digestive fluids, and hastens assimilation into the blood with less expenditure of vitality on the part of the invalid.

The contents of the milk, according to many analyses, shows that in fats, sugars, casein, inorganic salts and water it more nearly resembles the milk of the human mother than that of any other animal. Another salient feature of goat's milk is that those who live upon it are free from tuberculosis. This has been proven by the inhabitants of certain parts of Europe, where the goat is the only source of milk. In these countries, like some of the Balkan States, tuberculosis is almost unknown, while in neighboring countries its victims are numbered by the thousands. Goat's milk is being employed in the country in a number of hospitals for tuberculosis patients. In some of these nothing but goat's milk is used. While there may be no medicinal constituent in the milk, the ease of digestion accounts for its remedial quality.

## Goat Industry Growing

THE goat industry is on the increase all over the country. The work is pleasant and easy and a profitable business can be developed within a short time. The goats are gentle and respond to good treatment more quickly than most animals.

## About Sterilization

WHILE sterilization of milk is highly important, it should be borne in mind that the process of sterilization impairs the digestibility of the milk. The character of the casein is changed radically, and the curd of the milk becomes tough and more difficult to digest when heated above 110 degrees F. Tuberculosis is not communicated to children through the mother's milk, even in the case of tubercular mothers, the disease developing many years after the suckling has gone by. The sterilization of goat's milk is all the more inexcusable, as goats, according to Government reports, are immune to tuberculosis, and injury by sterilization of the most valuable milk we have is due to gross ignorance of true facts.

## Injury to Udder

OFTEN the udder of a goat is torn on a fence or other sharp object. To remedy this condition, draw the edges of the cut together and hold them in place either with adhesive tape or by taking stitches, leaving until healing unites the edges. In one case I know of, where the wound did not heal entirely, leaving a small part open, the edges were scratched or scraped raw and then united as at first.

## Goat Pneumonia

THERE are many cases of pneumonia among goats, and as the animals become more valuable the number seems to be on the increase. The cause of this is too close housing of the pets. This, above all things, should be avoided, as the goats gradually become unable to withstand changes of cold and heat. The best method is to provide warm shelter and then allow them to choose the warmth of a shed or barn or the open, as they prefer. Goats can stand cold and heat, but they are not so well fitted to endure the wet, muddy cold of some parts of the country.

The goat is a dry climate animal, and if it is kept in a wet part of the country dry shelter and standing places must be provided or the animals may not remain in good condition.

Furthermore, goats should be provided with plenty of room in which to walk or run. Small yards, close barns and stall feeding are not conducive to health. A particular case which came to my notice is that of one owner who exhibited goats at one of the large fairs. The manager of the fair placed the goats where they were under shelter but unprotected from constant draft day and night. As a result the owner lost two valuable animals as victims of pneumonia. Had the goats been kept in the open, where they could have chosen their own shelter, in all probability they would have been able to withstand the ordeal of protracted cold.—J. F. F.

## Goat Milk Separator

A LARGE manufacturer is advertising a special goat's milk cream separator, which is reported by users to be very successful. One breeder who had despaired of securing large quantities of cream by the gravity method reports that instead of half a teacupful of cream from a gallon of milk he now secures, by means of the separator, a half pint of cream from each gallon.

From eight gallons of milk separated daily this goat enthusiast makes 3½ pounds of excellent butter.

## Rabbit Hint

WHEN building a rabbit pen, bury a 12-inch board in the ground, [illegible] the wire and boards that [illegible] to this. The rabbits can [illegible] but will be unable to get out. [illegible] Ashley, Santa Susana, Cal. (H.)


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In the year of 1893 I was attacked by Muscular and Sub-Acute Rheumatism. I suffered as only those who are thus afflicted know for over three years. I tried remedy after remedy, but such relief as I obtained was only temporary. Finally, I found a treatment that cured me completely and such a pitiful condition has never returned. I have given it to a number who were terribly afflicted, even bedridden, some of them seventy to eighty years old, and the results were the same as in my own case.

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After your chicks are about six weeks old change the ration to Globe "A-1" Growing Chick Mash (containing dry buttermilk) and when the pullets are five months old begin to feed Globe "A-1" Laying Mash (containing dry buttermilk) and get ready for the full egg basket.

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GLOBE "A1" Baby Chick Mash


# Seasonal Poultry Suggestions

***Here are some practical breeding-season hints. A poultry authority tells just what you want to know at this time about breeding and selection. The future of your flock depends largely upon these factors.***

LATE in the winter or early in the spring the poultry owner should select and mate his best hens to use for reproducing his flock. To do this he must choose the season's breeding stock with care.

Progress will be made most quickly by selecting and using the best individuals in the flock as breeders rather than by breeding the flock as a whole. Standardbred roosters of the right type should be used with the selected birds; the chickens then will be of a much higher quality than the birds of this year's flock.

### Selecting Healthy Roosters

The selection of a male should be influenced largely by the character of the females used. Any general weakness in the hens should be offset, so far as possible, by strength in that particular in the male.

Only by continuous selection for health and vigor is it possible to build up a flock that will produce fertile eggs, strong chicks capable of making quick growth and pullets with sufficient stamina to stand the strain of heavy egg production.

soiled, roughened plumage. Choose a bird in good flesh, as a very thin bird is usually in poor health. Sick fowls, or those apparently recovered from sickness, ought never to be used for breeding.

In selecting stock for mating, the purpose of the breeding must be kept clearly in mind. To produce table fowls, select a breed that has a standard type, or a body shape suitable for carrying an abundance of meat. This type has a broad, deep body, good length of back and keel, and especially a broad breast well covered with meat.

### Egg Production

To breed for eggs, choose birds, as nearly as possible, that are good producers or are the offspring of such birds and that conform to the standard requirements of the breed. The best layers in the hens should have been banded or marked in some way in the fall, at which time their production is fairly well indicated by their appearance. The earliest maturing pullets should be banded when they start to lay in the fall and early winter, as these early-maturing birds usually make the best producers and

***(1) Standard bred Plymouth Rock rooster of good type; (2) poor type bird with knock-knees; (3) hen possessing good appearance; (4) poor type and weak constitution.***

The appearance of a bird is not always a sure indication of its vigor, but appearance and action taken together are a fairly reliable guide, say poultry specialists of the United States Department of Agriculture.

The comb, face and wattles should be of a good bright color, the eye bright and fairly prominent, and the head broad and short, having a fairly short, well-curved back and showing no tendency to be long, "snaky" or "crow-headed."

### How to Judge

The bird should be alert and have a strong, vigorous carriage; the legs should be set well apart and strongly supporting the body, with no indication of weakness or knock-knees. The bone in the shank should be strong and not too fine for the breed, with the toes strong, straight and not too long. Clean, smooth plumage is desirable, as a lack of condition often accompanies

may be used for breeding this year if desired.

### When to Mate Birds

Mating should be made at least two weeks before beginning to save the eggs for hatching. It is often desirable to mate even further ahead, so that a few eggs can be incubated for five or six days to see whether they are fertile. If they are not fertile, there is still time to change the male bird.

The breed of birds influences the size of the matings. If the fowls are confined to a yard, it usually is desirable to run from 12 to 15 females of a small breed with one male, while the females of the heavier breeds, only 8 to 10 are mated usually with one male. When the fowls have free range and the male is strong and vigorous, often it is possible to obtain fertile eggs with a much greater number of females to each male.

WE RECEIVED THE HIGHEST AWARDS on both ELECTRIC and LAMP HEATED BROODERS. The best brooders raise the best chicks. Send for circular.
VICTOR INCUBATOR CO., Decoto, Calif.

PCA

CHICK MASH With Egg and with Buttermilk. DON'T TAKE CHANCES. Start the chicks right, by feeding the BEST.

The original PCA Chick feeds are also the cheapest, results considered. Write for samples and prices—delivered.

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PCA

## Turkeys on City Lot

ALTHOUGH a city resident, with the usual city-size lot, I was anxious to raise turkeys, and in spite of the discouraging remarks made by friends, I bought eight turkey eggs, all of which were hatched by a hen.

That was the beginning of my turkey raising venture, and since then I have been very successful with them on my city lot. As a suggestion to Orchard and Farm readers, I have found that by dipping eggs of any kind in warm, not hot, water once daily for a week before hatching, death in the shell in many cases can be prevented. After dipping the eggs, place them under the hen without drying; the moisture helps to make a good hatch.

For the first 48 hours the little turkeys are fed nothing but coarse sand. At the end of that time, five times a day, I feed them all of the following ration that they can pick up in 10 minutes from a smooth board: Equal parts of hard boiled eggs, onions (green tops included) and rolled oats, all chopped very fine and mixed with a small portion of coarse sand.

For the first three months at 4 o'clock each day I put them into a box to protect them from cold or dampness. From the time they are hatched they are kept in a pen six feet high at one end of the lot. When they are old enough an occasional feed of cracked corn is given them, until the time when they can eat whole corn. I then feed bran mash in the mornings; table scraps, greens from vegetables and lawn clippings when available at noon, and whole corn at 4 o'clock.—Mrs. C. C. Richmond, Riverside, Cal. (H.)

## Corn Meal and Meat Scrap

THE highest egg production in poultry-feeding tests conducted by the United States Department of Agriculture was obtained from a pen receiving a mash composed of 4 pounds bran, 4 pounds middlings, 26 pounds meat scrap and 66 pounds corn meal.

This ration has given consistent high production over a period of several years, and is not distinctly different from the mash used in the wheatless ration, which has also given very good production.

While it is well to provide a good dust bath for chickens, it cannot be depended upon for louse and mite control, as some fowls seldom dust themselves, and those which dust freely never completely rid themselves of lice. The dust bath should be kept under cover and may consist of fine road dust with coal ashes added.

## Balanced Egg Food

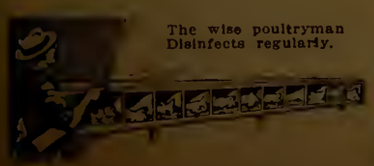
EXPERIMENTS conducted by a manufacturer of poultry feeds indicate that hens lay less eggs when fed an exclusive grain ration, for the reason that grains contain a preponderance of the materials used in making the yolks, with very little material for the whites.

In 100 pounds of wheat, corn, barley and kaffir, in equal proportions, it is shown, there is material for 239 yolks and 147 whites. If the hen received no white-making material at all, theoretically she could not lay an egg.

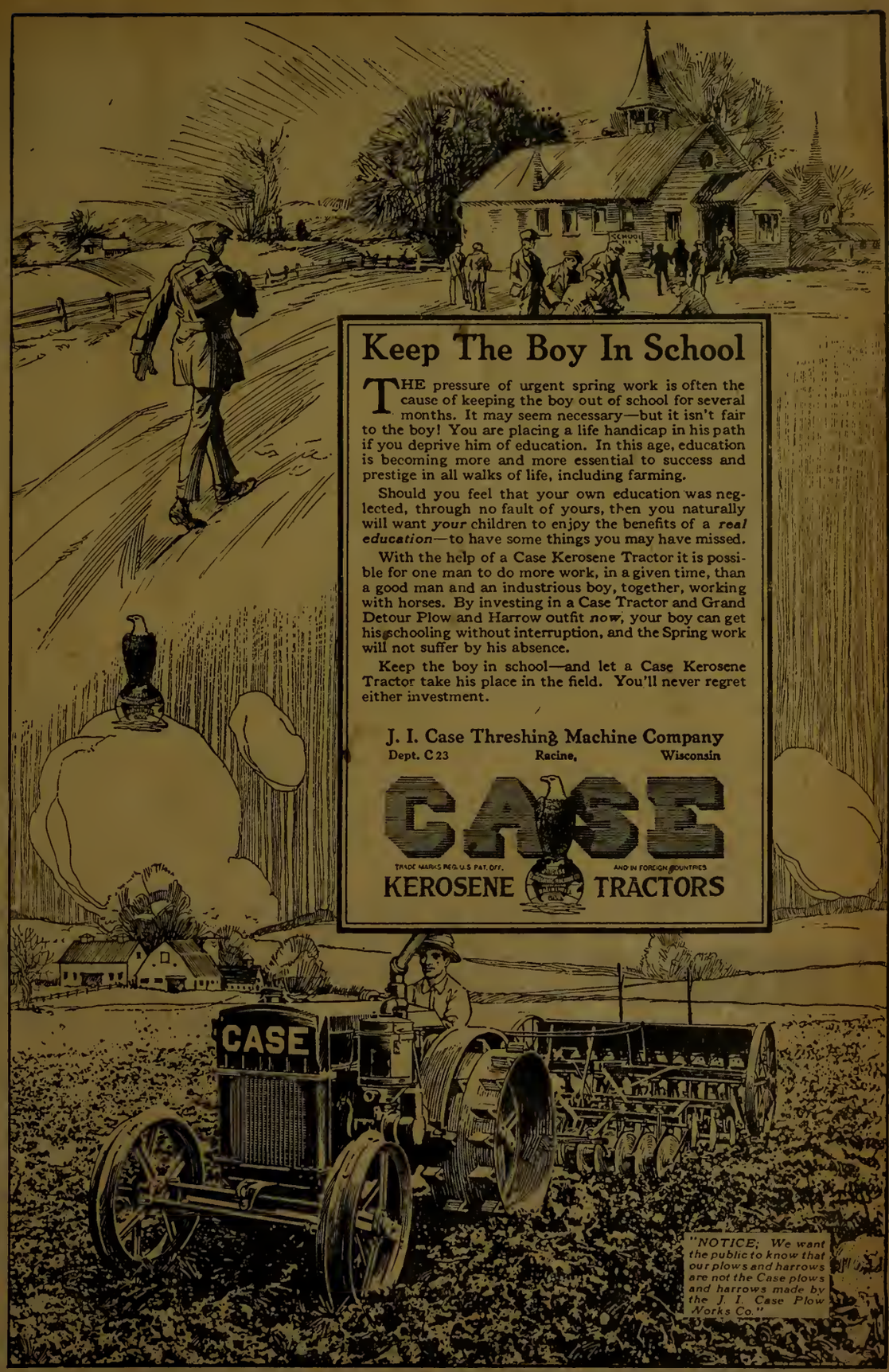
Thus is demonstrated the necessity for feeding mash, green stuff and the various materials that go to make up a balanced ration.

## A Cure for Roup

TAKE a quart tin tomato can, nearly fill with water, not too warm, add a tablespoonful of coal oil, but do not stir. Dip head of the hen in the can two or three times, allowing her to shake her head after each dipping. Repeat next day. I never have had occasion to repeat the treatment more than three times.—Mrs. F. Bauer, Santa Rosa, Cal.



The wise poultryman Disinfects regularly.


Keep The Boy In School

THE pressure of urgent spring work is often the cause of keeping the boy out of school for several months. It may seem necessary—but it isn't fair to the boy! You are placing a life handicap in his path if you deprive him of education. In this age, education is becoming more and more essential to success and prestige in all walks of life, including farming.

Should you feel that your own education was neglected, through no fault of yours, then you naturally will want *your* children to enjoy the benefits of a *real education*—to have some things you may have missed.

With the help of a Case Kerosene Tractor it is possible for one man to do more work, in a given time, than a good man and an industrious boy, together, working with horses. By investing in a Case Tractor and Grand Detour Plow and Harrow outfit *now*, your boy can get his schooling without interruption, and the Spring work will not suffer by his absence.

Keep the boy in school—and let a Case Kerosene Tractor take his place in the field. You'll never regret either investment.

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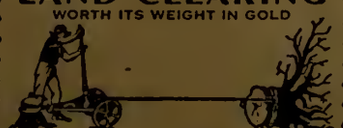

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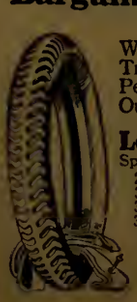

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# Culverts

Use them as culverts, as drains in reclamation work, as siphons under roads, etc.

Madewell Culverts are made in a wide variety of weights and in sizes from 8 to 54 inches in diameter.

Light in weight. Easy to handle. Will not crack or break. Not damaged by shifting and easily reset.

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MADEWELL


# From Hotbed to Field

By George Gautier

(This is the third of a series of articles on plant propagation and truck gardening, written especially for ORCHARD and FARM, by an authority of many years' experience.—Ed.)

III. Caring for the Young Plants

The moment the young plant appears in the hotbed the real work of propagation begins. All previous work, though important, has been more or less of a preparatory nature. One of the first things to watch carefully is the temperature of the beds, guarding against overheating. An average temperature of 90 degrees should be maintained. On warm days, if the sashes are not removed, the temperature will quickly rise as high as 130 degrees, crisping the plants.

Watch daily for need of irrigation, "damping off," insidious diseases, aphis, weeds and sickly yellow plants. Entire beds may be lost overnight as a result of "damping off" and neglecting to irrigate for a few hours on a warm day may destroy otherwise healthy plants. Aphis, if not controlled at the outset, may gain a tenacious and destructive foothold.

### Ventilation and Irrigation

Sashes should be removed daily, except on rainy days and when it is apparent that there will be no sunshine for several consecutive days. Ordinarily, however, sashes should be removed at 10 o'clock in the morning. If it is warm and sunny they may be left off until 2:30 in the afternoon. Many gardeners make the mistake of insufficiently ventilating the beds, and unless they are properly ventilated "damping off" will set in. Every bed is subject to "damping off" to a certain extent, but when properly ventilated losses are slight and easily controlled. When a plant "damps off" it can be readily detected, as it appears to have wilted and fallen over. Plants are susceptible to the disease until they have attained two or three weeks' growth.

A help in checking "damping off" is the application of Bordeaux mixture to the beds affected, together with an abundance of fresh air. It is important that affected beds be given immediate attention, for once the plants succumb to the disease they cannot be saved. The beds must be watched closely for the need of irrigation, as the constant temperature at which they are kept quickly dries out the soil. Remember that the plants are growing in only three or four inches of soil, and that it is difficult to conserve moisture in such shallow depth. A few hours of bright sunshine combined with the heat rising from the bed itself accounts for a surprising amount of moisture.

As a rule, the best time to irrigate the bed is in the morning when the sashes are being removed. Sprinkle the beds either with a hose, using a fine spray, or with an ordinary garden watering can. Throw enough water on the beds to penetrate the soil to a depth of three or four inches only, otherwise there is danger of killing the manure. Avoid, as well, over-irrigation, as this will tend to sour the soil.

If one cannot conveniently irrigate in the morning, it is advisable to do so just before replacing the sashes. Under no circumstances, however, should water be thrown on the beds in the evening, as this would cause the temperature to drop and remain low during the night.

### Plant Enemies

No matter how careful one has been to select clean soil, weeds will grow with startling rapidity, and unless carefully removed as soon as they appear will prove a handicap to the plants. The best time to pull weeds is a few hours after the beds have been irrigated. If pulled while the ground is dry or hard one is apt to break the stem and leave the root in the soil. Weeds have the annoying propensity of continuing their growth even after they have been beheaded.

Aphis begin to attack young vegetable plants practically the moment they burst through the soil, and if the plants are not examined closely they may do considerable damage before detected, as they work from the underside of the leaves. It is advisable to make a thorough search daily, turning over the leaves. Hotbed plants are commonly attacked by green aphis. If combated as soon as detected, however, it need not prove a menace. Plants infested with aphis cannot be placed on the market for sale, as the horticultural inspector will condemn them. Aphis are dangerous for the obvious reason that they sap plants of their nourishment. An effective weapon against this pest is a solution of nicotine sulphate applied with a sprayer. A common trade name for the solution is "Black Leaf-40."

### Value of Nitrate of Soda

Normal plants at all times should be bright green in color, and show a steady growth. If the plants are yellowish and seem to stand still, you may be sure that the quality of the soil is poor. For such plants nitrate of soda is unsurpassed and will bring them up to normal in every way within a week's time. As a word of caution, do not use more of the nitrate than directions call for; rather use less, as an overdose will burn the plants. Also, as a safety measure, it is advisable to wash off the plants at least twice after they have been given a dose of the solution.

### Transplanting

It is a serious shock to plants to be uprooted and replanted, and the healthiest of plants must undergo a definite setback. Sometimes plants will remain in a coma, showing no signs of new life, for weeks after being transplanted. Nitrate of soda judiciously applied will bring them to the open field at least a week earlier.

Although a severe shock, plants will show marked advances if transplanted when they have developed six to eight leaves. Chili, eggplant and tomatoes are invariably transplanted when about four inches high, especially those put on the market for sale.

The plants either may be transplanted in flats or in beds. However, if it is the grower's intention to sell his stock, flats are usually preferred. Before transplanting, soak the beds thoroughly so that the roots will come up without breaking. When selecting plants to transplant, take only the healthy, robust looking ones, throwing the weaklings away. Drill small holes in the soil about three inches deep, two inches apart and an inch in diameter, setting in the plants and pressing the earth tightly around the roots. Do not plant too deeply. Irrigate well, then place the sashes over the bed. Irrigate and give air regularly, but remember that the transplanted plant requires more even and warmer temperature than young plants.

If larger plants fall over or seem to wilt for no apparent cause, it is well to look for cut worms or wire worms. Cut worms work at night and during the day dig under, usually at the foot of the plant they have destroyed. They always attack plants about on a level with the ground. Wire worms attack the roots and they may be found by digging down to the roots or a little deeper.

### Preparing for Field

After the plants have gained a new foothold, it will be necessary to prepare them for the open field by subjecting them to the same climatic conditions. Begin by removing the sashes earlier in the morning and replacing them later in the day, finally leaving them off altogether, except on frosty nights. In this way the plants will become hardened, and when set in the field be prepared to grow.

Plants raised in hothouses or those not hardened by gradual exposure usually die when set in the field unless carefully nursed along for some time, and it is far more difficult to nurse a plant in the field than it is to raise it properly in the hotbed. Hence the importance of proper care of the young plant in the hotbed.

## Own a "Selected" Farm In WESTERN CANADA

Come from the place where men call for land to the place where land calls for men. Along the lines of the Canadian National Railways land is selling for $20 to $50 an acre, *unsurpassed* for fertile soil and rich crops.

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Your "SELECTED" Farm will be carefully chosen from the cream of the richest wheat and cattle country in America, to meet your special needs, by experts representing 17,000 miles of railway, whose advice, free to you, is of great practical value.

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Western Canada extends a helpful hand to you. Friendly neighbors with the same language and customs — splendid schools, churches and social life—warm, sunny growing summers and dry, healthful winters—law and order—efficient labor supply—await you in this wonderfully prosperous "LAST WEST."

**Profits in Wheat and Dairying**

"SELECTED" Farms along the Canadian National Railways average more than 20 bushels of wheat per acre. Under specially favorable conditions a yield of 50 to 60 bushels per acre is not uncommon.

Dairying is very profitable. A world-wide market awaits all that Western Canada can produce.

Stock thrive on the prairie grasses which make fine hay. Cattle and horses require only natural shelter most of the winter.

**Low Taxes**

Western Canada taxes fall lightly on the farmer. There is a small tax on the land, but buildings, improvements, animals, machinery and personal property are not taxed at all. There is no increased taxation on farm lands to meet war expenditures.

**Easy Terms**

Terms on "SELECTED" Farms: About 10 per cent cash down, balance in equal payments over a term of years; interest *usually* 6 per cent.

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Reduced railway rates will be made for landseekers and their effects to encourage inspection of "SELECTED" Farms along the lines of the Canadian National Railways. Personally conducted excursions for this purpose also will be arranged. Full information will be sent on request. WRITE OR MAIL COUPON TODAY!

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That you may test the value of BURPEE QUALITY SEEDS we will, during this month, send entirely free a large trial packet of Burpee's Stringless Green Pod Bean Seeds. With the Beans we will send a Burpee Booklet about the best seeds that grow, both absolutely free.

All we ask is that you send us a two-cent stamp to pay the postage. Write for your beans today.

W. ATLEE BURPEE CO.

Seed Growers Philadelphia

## Corn Raising Secrets

By E. C. Frazee

MANY years ago, during a trip "back East," I secured a curiosity in the form of a five-ear "sport" stalk of corn. This I brought to my home at Santa Rosa, where, by a selective process, extending over a period of ten years, I developed a strain of corn bearing from five to twelve ears to each stalk. The entire "family" of the California Wonder Corn was founded on this one stalk which I secured in my travels.

Plant breeders will be interested in technical details concerning the selection of seed. The original "sport" produced 25 per cent of stalks bearing a high number of ears, and recent improvement has resulted in a general yield of from three to twelve ears to the stalk.

### Big Average Yield

Some of the best areas in my plantings have averaged six ears, and the ears have weighed on an average of nearly a half pound each, which figures about 350 bushels per acre. It is quite a common occurrence to find four half pound ears on one stalk, and I have picked many stalks carrying eight ears, on which the total weight of corn was more than four pounds for the one stalk. Those bearing eight to twelve large ears are valued highly as breeding stock.

In my breeding plots I have planted nothing except seed from stalks bearing five to twelve ears. In addition to the breeding plots, I maintain a "try out" bed where new candidates for mother stalks are tried out by planting a few hills. Those that prove to be strong producers are the following year given a place in the regular breeding plots, where they are planted according to the ear-to-row method, alternate rows being detasseled, and the seed saved only from these rows, as corn fertilized by other than its own pollen seems to "hold up" better.

### Constant Renewal Necessary

The breeding plots serve as sources of supply for seed for field planting. It is necessary constantly to return to the seed plots for new stock, because any corn, no matter how good, will deteriorate if not kept up by selection.

Every farmer who raises corn should have a breeding plot, and any farmer can successfully operate this same system for himself and possibly produce a better corn for his own climatic conditions than any special strain he could introduce, but it is to his advantage, of course, to start with a strain of high-yielding qualities.

## Mint Near Fresno?

Do you think the climate of Fresno County too dry for mint growing? My land is low and near water and more humid than the average, there being a light dew nearly every morning all summer. It is part of a reclaimed swamp or tule pond and supposedly valuable only for hay-raising.

Have plenty of water to irrigate the part which doesn't subirrigate. Would you consider it practicable for me to use a large iron tank for boiling the oil out of the green mint, same as the English growers used to do in olden times?

Would have only eight acres and it probably would not pay to build a regular still for such a small crop. Have you the address of farmers having roots to sell?—Eugene Browe, Selma, Calif.

### Reply by O. H. Barnhill

Mint undoubtedly would do well on your ground. A small one-tank still could be built for about $300, which is a small investment, considering the size of the crop, which would doubtless amount to $1600 per year. Probably some of your neighbors have land suitable for mint growing and you could easily pay for your plant by doing custom distilling. Boiling the green leaves and stalks in an iron tank would be a very slow, expensive operation. The saving in labor and oil by distillation would likely pay for the still the first year. J. B. Wallace, Albany, Ore., president of the Willamette Valley Mint Growers' Association, could tell you where to obtain roots for planting and give advice on building a still.


# Five Years Hence

**In another five years the present readjustment conditions will have been forgotten. Every dollar invested in trees today will be paying you dividends then.**

**Provide for the future by planting now.**

Millions of acres of fertile lands now unprofitably employed in growing cereal crops will insure the future prosperity and happiness of their owners if planted to commercial orchards today.

**PRUNES, PEARS, PLUMS, APPLES, CLINGSTONE PEACHES, FREESTONE PEACHES, CHERRIES, APRICOTS, ALMONDS, WALNUTS, GRAPES, OLIVES**

—all profitable according to their adaptability to your location.

Submit today a list of your tree wants for prices.

Catalog of useful Horticultural information mailed on application.

Nothing will add so much to your enjoyment as a well selected home orchard. Do it today.

Foot-hill grown trees are practically immune to crown-gall and diseases common to other localities. Roots, such as pictured above, are grown only on our foot-hill soil and location. They are tree insurance.

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**FISH** Salmon in brine, 100 lbs., $11.00. Shipping weight, 165 pounds.
Smoked Salmon, 20 lbs., $3.40. Dried Codfish, 10 lbs., $1.75. T. A. BEARD, 4322 Winslow Place, Seattle, Wash.

In answering advertisements please mention ORCHARD & FARM.

*Ask for Ghirardelli's Ground Chocolate at the store where you do your trading. Never sold in bulk but in cans only. In this way Ghirardelli's retains its flavor and strength—the two most important elements of good chocolate.*

IT'S simple enough—the chocolate-sweetness of Ghirardelli's makes additional sugar unnecessary. You lose nothing of its deliciousness, its flavor, its strength, when you "pass up" the sugar. For Ghirardelli's "stands on its own feet" as a complete food beverage—sufficient unto itself!

*Say "Gear-ar-delly"*

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Since 1852 San Francisco

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**FRUIT and NUT TREES**

We have almost complete assortment of all sizes and varieties, but have large quantities of certain sizes and varieties which **WE WILL SELL AT 10c to 20c LESS** per tree than regular prices. We have an extra fine assortment of

**Apples :-: Peaches :-: Pears :-: Prunes**

Whether you want one, ten, one hundred or ten thousand trees, let us figure with you. Send in your list of wants, giving varieties and sizes, or

ASK FOR FREE PRICE LIST
In Which We Offer
*—500— VARIETIES —500—*
**FRUIT and NUT TREES**

We also have nice assortment of ornament plants, shrubs, roses, etc. Write today.

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**GOING TO BUILD?**

Send for our Price List of Lumber, Sash, Doors and Builders' Supplies. We save you middleman's profit.

Contractors' & Builders' Supply Co.
1401 5th St. Oakland, Cal.


# "Sic, 'em, Hector—A Salesman!"

***"Why is a tractor salesman?" We asked the sales manager of the Yuba Manufacturing Company, one of the largest tractor concerns in the West, to answer this question. The result is an article that we hope every subscriber of ORCHARD and FARM will read carefully. In his breezy style, Mr. Gardner "puts over" some really new and valuable power-farming information—and he knows whereof he speaks.***

By Walter H. Gardner

"NOT on your life!" declared John Tomkins. "One smooth-tongued word-juggler sold me a tractor once; when I get good and ready I'll buy another, and no circulating hot air artist will talk me into doing anything until that minute comes! Sic 'em, Hector!"

Quite naturally the field men of various tractor dealers passed him by and talked to his more open-minded neighbors.

There was Bill Ketcham, for instance, across the way, who owned an old, time-worn, orphan machine of the early days. A salesman found a market for it in another corner of the county with a man who needed the engine as stationary equipment for a pumping plant. Bill got from the deal half the price of a brand new, up-to-date rig and prospered accordingly.

### What Bert Learned

Near him was Bert Masters, who owned just the right tractor to wipe out a row at a time in his vineyard. To be sure, he followed it with a horse that plowed around close to the vines.

***A Tractor Salesman Sold This Truck!***

***Motor truck dealers had been unable to interest this potato grower until a friendly tractor salesman told him of the results obtained by another farmer with a truck. Now he thanks his friend, the tractor salesman, for the increased efficiency and profit he enjoys, and, incidentally, does his field work with a tractor. Don't sic the dog on the salesman!***

One day, seated in friendly chat on the running board of a salesman's auto, he learned how another raisin grower had hitched a similar horse plow behind his engine gang, and, with a strong laborer to guide it, had dispensed with the horse. Bert tried the same stunt, found it practicable, and saved time and money.

When Tom Newbold's tractor driver suddenly was stricken with the flu, right at the height of the season's work, it was the salesman of a competitive make of tractor who cheerfully and promptly found him a capable mechanic!

And when there came a short season—rains right up to the summer heat—John Tomkins swore lustily that the days weren't long enough. Other ranchers, facing a similar problem, listened to the keen-faced traveling sales agent, and invested in special lighting equipment that doubled the precious working hours.

Later, during the distillate shortage, when it seemed extravagant to burn straight gasoline, it was another salesman who spread the word about mixing half gasoline and half kerosene for the regular "gas burners." John, being an unsociable fellow, was the last to learn of this little economy.

Now there are other men like John—men who look on the salesman as a parasite, a glib-tongued, highly paid hypnotizer of their better judgment. It's such persons who see in a paid advertisement only an expense that is taxed to them as purchasers, an excess charge above what should be a fair price.

Consider the dollar watch! Suppose the inventor had depended on word-of-mouth to get distribution for his product. Suppose he had said: "I'll cut out the cost of salesmen and the expense of advertising, and I'll cut the selling price accordingly." Could he have sold that watch for a dollar? Not in a thousand years! It was the courageous initial investment in sales energy and advertising space that brought a flood of orders; the pressure of Nation-wide demand that allowed quantity production—and it was quantity production that cut manufacturing costs to the amazingly low figure.

There's the basic justification for the salesman—the part that he plays in developing quantity production. Every man who buys a tractor pays something for the selling cost—something for factory overhead. But if it weren't for the salesman's success in keeping that factory crowded with work the overhead would be trebled.

Selling has been defined as "Educated enthusiasm"—"educated," mind you! And every tractor salesman has a store of knowledge, of common sense experience that he'll gladly share with every farmer who is in the least interested. He talks with many people. He sees many ways of farming. He is coached right up to the minute on an important subject—power farming machinery. He knows how to express himself and is a cheerful soul, not at all a bad fellow with whom to pass the time of day.

Now the modern tractor man must be a farmer, without presuming to know as much about agriculture as his customers. He must be an engineer, without the falling of indulging at too great length in argumentative technical discussion. He must be a trained salesman without the fault of being too flowery of speech and too specious of manner. His perspective must be wide; his optimism deep and abiding. The successful salesman of reputable companies is trained to boost, not to knock. He is trained not to make a sale and "get away," but to stay and render service—to make customers, not merely sales!

Not long ago there were several large ranches in the West that operated whole fleets of tractors. Their upkeep expense was too high, greater than the same machines in the hands of individual farmers. They had good drivers, highly paid mechanics. What was the trouble? A tractor salesman diagnosed the disease and found the remedy. It was shown that when a tractor needed an adjustment or repair, the driver who was allotted to that particular machine was the man who took it down and stayed with it

(Continued on Page 41)

## Sutter Basin

(Continued from Page 6)

When the time came to sell and colonize the land a new department was organized, H. B. Klingensmith having been chosen to carry on this part of the work. Mr. Klingensmith had made an enviable record interesting farmers in Sacramento bottom lands and it was fitting that he should be given as his first lieutenant, "Bob" Jones, who has created and developed opportunities for himself and others ever since he began work many years ago as a cub reporter on a Sacramento daily.

Those connected with an agricultural project such as this must in some way work off their enthusiasm. It is only fair, therefore, to give voice to some of the facts and figures with which the writer was fairly bombarded during his tour. With due conservatism, the Sutter Basin enthusiasts tell of tremendous crop yields.

One man on 420 acres last year averaged 52 sacks of barley per acre; this was the Mariout variety, developed by the University. One wheat field yielded an average of 33 sacks (weighing 135 pounds to the sack) on 400 acres. Green peas have produced 120 crates to the acre; potatoes, 70 sacks of No. 1's and 35 sacks of No. 2's.

Celery sometimes gives a carload to the acre. Second-year alfalfa has yielded nearly 10 tons.

### Double-Cropping Practiced

Double-cropping is becoming quite common. One double-cropping plan is to raise barley with horse beans or field peas, as a fall or winter crop, and dry beans as a summer crop. Other combinations are green peas in winter and fall potatoes in summer; spinach and tomatoes; peas for seed with lettuec in the fall and winter; cabbage and tomatoes.

Beans give wonderful yields in Sutter Basin. At one time practically the entire area of more than 30,000 acres was planted to beans in a single season.

Sutter Basin boosters, anticipating unbelief, support their assertions with facts and figures. The great yields, of course, point to a rich, alluvial soil of uniform depth and consistency. Protected from flooding by excess water, the land rapidly is improving in tilth and fertility, perfect drainage having been provided, according to the Sutter Basin engineers, as a necessary factor in successful irrigation.

### Protection by Pumping

An essential part of the drainage system is the pumping station for the reclamation district, one of the largest and most complete in the world, which contains six 50-inch centrifugal pumps, each driven by an 800 H. P. electric motor. (This is at the point visited in a motor boat prior to completion of the works.)

Secure in the knowledge that his farm lands thus are well protected, Farm Superintendent Waybur is going about his work with characteristic efficiency and energy. The winter vegetables which have caused Sutter Basin to be called the "Imperial Valley of the North" are being shipped. These include nearly 100 acres of lettuce, 86 acres of peas, 100 acres of cauliflower and broccoli and 80 acres of cabbage. The early potatoes will total 200 acres.

Outlining his plans, Mr. Waybur stated that in addition to the standard vegetables mentioned the company will dig nearly 1,000,000 asparagus roots for a large canner. Later in the spring will be planted 150 acres of cantaloupes and 100 acres of melons.

The spring work is being tackled with 12 tractors and 90 head of work stock. Great batteries of farm machinery are being mobilized and put on the fields.

Four drilling outfits are planting

(Continued on Page 30)


# A Tractor that meets every requirement of orchard work

CATERPILLAR
Reg. U.S. Pat. Off.

## 5-TON ORCHARD TRACTOR

Here, in the famous 5-Ton "Caterpillar" Tractor, is an orchard tractor that solves your particular power problem — fully meets your special needs.

It has power — big power — and that's your foremost essential. With the 5-Ton you can plow or subsoil deep, finish up your work quickly, keep a safe distance away from the trees.

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What little extra money the best rings cost you is made up many times over in economical and satisfactory gas engine operation.

McQuay-Norris Equipment—the Superoyl Ring to keep oil out of the combustion chamber—and the genuine Leak-Proof Ring to prevent the leakage of fuel—will increase your gas engine power—save gas and oil—and decrease carbon troubles. These rings represent 1[illegible] years of successful experience in piston ring manufacture. Your dealer can supply you in any size or over-size for any make or model of engine.

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McQuay-Norris Mfg. Co., St. Louis, U. S. A.

*Write for Free Book*

[illegible] ...Dept. AK

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# SYSTEM
*in shop—office—and—field*

## How I Use a Planting Board

A PLANTING BOARD [illegible]

[illegible]

## Caring for the Harness

T[illegible]

## Things on Wheels

I[illegible]


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ARNOTT DRAG SAW

[illegible]

# Some Simple Business Ideas for Farmers

A SUCCESSFUL farmer of my acquaintance stated that at the time of purchasing his property he knew nothing about farming or soils; however, he paid a six weeks' option on the place and sent samples of the soil from several parts of the field to soil chemists for testing. He was told, after the soil had been tested, what to expect from it and the kind of fertilizer that would give the best results. He also was informed that the soil needed humus badly. The farm adviser helped him plan a system of crop rotation which would supply humus and increase both the fertility of the soil and the yield of the crops.

**Protection in Purchasing Property**

While waiting for the reports from the chemists he employed a good carpenter to examine the foundations of the farm buildings and make a rough estimate as to the cost of such new buildings as were needed and renovation and repair of the old ones. As the carpenter's and chemists' reports were satisfactory, the deal was closed.

---

VERY few farmers know what returns they realize from the crops raised; a great many do not even know what crops are raised at a loss. No man could continue long in business if he did not know the difference between his assets and liabilities. These facts show that the farm should be put on a business basis, and if the farmer does not like to keep books according to the usual methods, he can at least limit his expenditures for improvements by a simple plan.

**Budget for Farm Accounts**

First, figure the value of land, improvements, stock and equipment in the form of an inventory.

Now set down one-seventh the cost of improvements and equipment (for depreciation and "upkeep"), then add interest for one year on the entire investment. Finally, add fair wages for yourself as manager.

Your farm operations for the year must pay a net return equal to the total of these three (depreciation, interest and wages) before you can feel free to spend any money upon improvements. Therefore, in order really to know where you stand, you must keep accurate record of all receipts and expenditures. Checkbook stubs and receipted bills on the one hand and bank deposits on the other are not the most accurate and reliable records, but they will serve as the basis for the budget if no books are kept, provided everything produced is marketed and your business is on a cash basis.

The reason for giving so much attention to the improvement budget is plain. When a farmer fails, it indicates often poor management, but frequently too heavy an investment in improvements in proportion to capital or net returns.

Many buildings are erected and much machinery purchased that the farmer can ill afford. Unless it is shown that an investment in buildings or machinery actually will return greater efficiency or increased production, there is no excuse for this investment when the farm is not paying. So much for business improvements.

In order to decide how much may be spent on the house and grounds, it is advisable to allow a reasonable rental, which the family would have to pay if living in the city. This "rent money," in a few years, will buy electric lights, a water system, household improvements, ornamental gates, walks, lawns, flowers, shrubs and the various things that go to make up an attractive homestead. And the "rent money," of course, comes out of the wages that the farm must pay the owner as manager.

Many a farmer actually does not know what he can afford to do in the way of improvements, and many a farmer has "gone broke" by blindly putting up expensive buildings when his business (although he did not realize it) actually was not making wages, interest and depreciation. The only way to be safe is to be sure. Figures do not lie.

---

THE only really satisfactory system of farm bookkeeping is to open an account with each field or department. For instance, if one field is planted to potatoes, the crop should be charged with all expense of preparing the land, planting, cultivating, spraying, fertilizing and harvesting and credited with potatoes sold or consumed.

**Keeping General Accounts**

The dairy will have an accounting system in itself, which should include milk-records of the individual cows.

Particularly should the careful farm bookkeeper see that each account is credited with odd revenue, such as returns from cull or by-products. If cull products are fed to animals, the orchard or field should be credited and the animals charged at a fair figure. Animals also should be credited with manure returned to crops. Frequently these odds and ends make the difference between profit and loss.

Every field or department, too, should be credited or charged (as the case may be) with products consumed on the farm.

Bookkeeping is of especial value to a farmer who does much of his own work. It takes very little time and will save him many expensive mistakes as well as showing him which are the worthless stock and poorly paying crops. By spending a little time on keeping accounts and records many a farmer has trebled his income and greatly increased yields and soil fertility.—C. C. Tomek.

---

## Young Farmer Co-operates

NEAR Hemet, in Southern California, lives an agricultural student who learned, among other things, how to co-operate, while studying the secrets of successful soil culture. Although he graduated only last summer, Lee M. Durham now is comfortably located on a fifteen-acre orchard of oranges, apricots, walnuts, peaches and olives. Young Durham belongs to the Farm Bureau, is secretary-treasurer of a mutual water company and markets his fruit through four co-operative associations.—O. H. B.

*"And why are you keeping the cow in the orchard?"*
*"I'm planning to make some apple butter."*

# On the Basis of Facts

The life of our country is built around its Public Utilities. Our social, industrial and Government activities could not exist today without the continued operation of their indispensable services.

That such services may be extended and developed to be of the greatest use to the greatest number, the Federal Government and practically all the states have appointed Public Service Commissioners as permanent tribunals to regulate public utilities with fairness to all concerned.

Facts as to the past and studies as to the future, the Bell Companies find are essential to the proper management and development of their business. This information is open to study by these Commissioners and through them by the public generally.

The solution of the problem of building up and maintaining the public utilities, which is of the greatest importance to the people of this country, is assured whenever all the facts are known and given their due weight.

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## Bean Direct-Connected Pump and Motor

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*Volume of water desired (Gals. per min.)* _____
*(Inches)* _____
*If you have pit, give width* _____ *length* _____
*depth* _____
*H.P. of motor or engine if you have that equipment* _____
*Give total depth of well* _____
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*Address* _____
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# Manning Gas Maker

## Makes Any Stove a Gas Stove

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SMOKE
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Generates gas from kerosene oil supplied by air pressure from storage tank. Can be fitted in stoves, ranges, heaters, furnaces, water heaters, coffee urns, vulcanizers, candy furnaces or any place where good heat is required.

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# SAMSON

*Now is the time to buy your*
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It is the ideal machine for turning cover crop. It pulls a two or three-bottom plow, a tandem disc harrow, two twenty-foot spike tooth harrows, two four-horse grain drills.

The Samson is mechanically right. It lowers the cost of operating your farm.

## Samson Implements

We have a complete line of Samson Trucks and farm implements. Write for detail.

*Write us today for information which will help you lower your operating costs.*

## Samson Tractor Co. of California

STOCKTON, CALIFORNIA

*Subsidiary General Motors Corporation.*


# My Trip Through Sutter Basin

(Continued from Page 27)

grain. Nearly 20 beet drills are used at one time. Ten tractors sometimes operate in one great field, plowing, disking and harrowing.

### Little Livestock

The company has not gone in extensively for livestock raising, the present holdings consisting principally of a herd of purebred Duroc-Jersey hogs, which includes about 150 animals. Having contracted to grow a large acreage of sugar beets, the farm superintendent plans to purchase feeder cattle with which to pasture the tops, finishing the cattle later in dry lots, with the addition of grain to the ration.

So many amazing facts and figures did these Sutter Basin boosters force us to swallow that we feel we scarcely did justice to the excellent dinner prepared for us at the headquarters "camp." And as the car swung back onto the main highway toward the Capital City, we were yet somewhat dazed from the effect of the "thousands" and "millions" so carelessly flung about.

The setting sun painted a colorful picture for us upon the distant coast mountains, great rows of beautiful trees adding to the picturesqueness of the twilight scene. We all gazed in admiration across the fertile fields toward the gorgeous horizon. One of the men in the car sighed deeply. "Ain't nature wonderful?" he remarked.

"Yes," we agreed, "but she is not in it with the engineers."

***Crops to the Water's Edge***

## "MUD TIME"—By Jason Wells

[Lines written in reply to the city-bred visitor who complained of the mud on our farm.]

YES, we have a little mud, as you've seen,
When it rains—but the scum is never green!
True, we splash and slip and slide—
And hate to go outside—
It is disagreeable—but it's clean!

THAT much cannot be said of city muck!
If you get a whiff of it you're out of luck.
So I'll take the rural ooze,
Though it clings to my shoes—
I prefer the country kind when I'm stuck.

OH, it's spatter, slide and slip on the road,
And the horses strain and jerk with their load
Then the wheels go out of sight,
And it rains again that night—
But still I wouldn't change my abode!

FOR the rain paints the hills verdant green.
Then the sun adds its warmth to their sheen.
And before we are aware,
Why, the mud isn't there!
And, anyway, we know that it's clean!

(Written for Orchard and Farm. Copyright.)

## Helpful Suggestions Contest Arouses Enthusiasm

OUR readers continue to submit many interesting and helpful suggestions to be entered in the contest now being carried on. More than $150 in cash prizes will be awarded upon completion of this contest in June. The present event is patterned after the Helpful Hints contests so successfully conducted by ORCHARD and FARM in the past. Following are excerpts from letters written by former prize winners:

Received check for $27.00 today as payment for first prize in the Helpful Hints Contest. It came as a complete surprise. I thank you. If there is anything I can do to help ORCHARD and FARM, just say the word and I will proceed.—Cliff H. Weldon, Richmond, Calif.

I wish to thank you for your kind letter and check which I was awarded as a prize in the Helpful Hints Contest. I had hardly expected to win a prize and am more than pleased that my efforts have been so successful. I just had our subscription extended for three years as we consider it a very good farm paper.—Mrs. George A. Enos, Salinas, Calif.

Why don't you sit down tonight and write out that idea that you have had in mind? A sketch or photograph is helpful but not required. Simply give your full name and address and mark your contribution "For Helpful Suggestions Contest," addressing the Editor of ORCHARD and FARM, 1111 South Broadway, Los Angeles, Calif.

Remember, there is no limit to the number of contributions that may be sent by any one subscriber. But you must be a paid-in-advance subscriber in order to take part in the contest. A number of articles entered in the contest are published in this issue.

Sturges Steel Churns

Easiest to Use and to Keep Clean

Light in weight. Easiest to handle. Best churning results. This all-steel churn cannot soak up moisture and is easy to clean and keep sanitary because it is made of drawn steel heavily tinned and soldered smooth. Will last a lifetime. See them at your dealer's and write for circular 20X

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MAPS

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H. CLAY GLOVER CO., Inc.,
118 West 31st Street, New York

$1400 PER ACRE FROM RHUBARB

First season after planting. See Classified Ad, this issue.

W. A. Lee, Covina, Cal.


# Dehydrate Peaches

(Continued from Page 14)

ficient if dehydration is carefully controlled.

The normal drying time was 24 hours for unpeeled and 14 hours for peeled peaches. The fruit entered an atmosphere of 120 to 130 degrees F., and 50 to 60 per cent relative humidity, moving progressively forward until the final drying was completed at a temperature of 150 to 160 degrees F. in air 20 to 25 per cent saturated with moisture.

### Temperature Closely Regulated

If the temperature was allowed to exceed 160 degrees F. when the peaches were nearly dry there was found to be danger of scorching, especially in the pit cavity and the fuzzy skin.

Inadequate air-flow increased the required drying time by at least six hours, as evidenced by the fact that one truckload was finished in 20 hours. Unquestionably, unpeeled peaches can be dehydrated successfully in 18 hours.

### Cost of Dehydration

The cost of dehydration was $2 for fuel (8 cents per gallon stove oil and 40 cents for electricity per green ton). The expense for cutting, pitting and traying the fruit came to $8 per green ton (20 cents per 50-pound box). Because of the small tonnage handled and the extra labor required for experiments, no record of other labor is available. Unquestionably, considerably less labor is required in handling the fruit in a dehydrator than in a dry-yard, this saving considerably reducing the extra cost of power and fuel.

Confirming the results obtained with apricots, the greater yield of dehydrated peaches was found to be due entirely to their higher moisture content. Sun-drying 100 pounds of peaches yielded 20.9 pounds dried peaches, containing 17.8 per cent moisture, while the same quantity of peaches dehydrated gave 22.1 pounds containing 23.7 per cent moisture.

### Effect of Peeling

Small quantities of peaches were peeled, some by hand and some in boiling lye solution, both before and after pitting. Lye-peeling, as practiced by most canneries, is the most economical method, besides producing the best-appearing product with minimum waste.

Peeled peaches, in order to prevent browning by slight residues of lye, should be sulphured soon after washing. Dehydrated peeled peaches are a fancy product and dry in little over half the time required for unpeeled peaches. This reduction in cost of drying partially offsets the peeling cost, although this product always must bring a higher price.

Whole Phillips clingstone peaches were successfully dehydrated in 24 hours after being scored to the pit in four quarters and sulphured several hours. It is possible also to pit and peel clingstone peaches for drying, but such a product finds little demand.

### Degrees of Ripeness

In order to observe the effect of various degrees of ripeness on the quantity and quality of dried peaches, some 500 pounds of orchard run peaches were graded as follows: Green (suitable for fresh shipment); hard ripe (suitable for canning), and soft ripe (suitable for dehydration). The green fruit gave a reduction of 6 per cent of dry weight over the hard ripe and soft ripe, which were about equal.

The quality of the greener fruit was very poor, both in flavor and color. The difference between the hard ripe and soft ripe was not so pronounced, although the soft ripe was a brighter, more even yellow color. This emphasizes the fact that the quality of the final product reflects the condition of the original fruit.

### Sun vs. Stack Drying

Two lots of orchard run peaches were dried in the sun; one lot exposed to the sun three days and finished in the stack four days; the other dried exclusively in the stack, requiring 11 days. The yield in each case was the same, but the fruit dried partially in

(Continued on Page 37)


"—it keeps my stock in better condition,"

Says Mr. J. M. Henderson Jr., Sacramento, Cal.

Mr. Henderson is the owner of Purebred Stock Farms, and his ideas relative to feeding are soundly based and scientifically carried out. His estimation of the value of Pure Hawaiian Cane Molasses should count with every breeder or stockman.

His letter in greater detail: "It has brought results in many ways. I do not hesitate to recommend it to other dairymen. It has enabled me to keep my stock in better condition at less expense than any other feed that I have had occasion to use."

Find out what Pure Hawaiian Cane Molasses will do for you, on your farm. Let us tell you of actual profit-making results that others have secured. Average analysis of food values are prepared for you in booklet form. Get this booklet. It is sent free, on request, to men who feed stock. Write today for your copy.

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TENTS
TENTS

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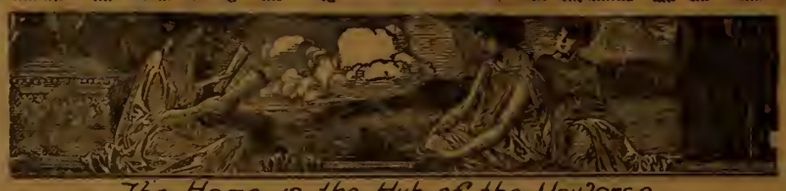
# HELPFUL HINTS for THE HOUSEWIFE

Edited by Isabel Sinclair



The Home is the Hub of the Universe

## More Important

I once thought making money
The beginning and the end—
But now—it may seem funny—
I had rather make a friend.
—Jason Wells.

ar Friends:
want to say just a word this month ɔut the value of reading good books the children. An example of the portance of training the child mind s brought to my notice recently by e mother whose child needed con- nt entertaining. When the mother d not the time to do the entertain- ; the little girl would either sit on e steps and complain of nothing to or contrarily disobey her.

Then I thought of another friend's le girl who would sit for hours un- a lilac bush, peopling her yard th fairy folk or enjoying the com- ny of "make-believe" children, so sorbed in her imaginative play that e was entirely oblivious of her soli- le.

### The Reason Why

The reason for the widely different positions of these two children sily can be accounted for. The first ld has an undeveloped imagination d the other a mind so full of pic- es that she has unfailing resources all unoccupied hours. Her parents d the time and make the necessary rifices to exercise the privilege of ching their children's imagination, d as a result the children cultivate habit that means endless joy and ure opportunity for self-education the best possible sort.

The farm mother and father are sy, I know, but surely they can find hour, or even a half hour each even- ; before the children's bedtime, to vote to the reading aloud of some ɔd book, making this a practice dur- ; the years to come, and choosing oks suitable for each advancing ar.

### For Older Children

For the older boy or girl, who may ve been unable to complete school rk, there are books on vocational ining, so that their study may be lished at home. The librarian of any blic library will select and furnish y books you need or desire if in- lry is made of her, or I shall be glad supply you with a list of books ng these lines, as well as fiction for younger children.

Let me urge you parents who re- ve this message to make a practice reading to your children every day, d your effort and sacrifice will be ɔaid many fold in the happy home urs which your children will never get, in a wealth of play material the time they must fill by them- ves and in a mental equipment for er years the value of which cannot overestimated.

Sincerely,

Isabel Sinclair

## Renewing Window Shades

WHEN window shades have become shabby or torn at the ends, re- ve them from the roller and reverse, king the shade to the roller care- ly. Lengthen the stitches on the wing machine and make a hem on e new end to slide the shade stick rough; replace the ring and the ade will be as good as new.—Mrs. orge A. Enos, Salinas, Cal. (H.)

Heat Gasoline Safely—Put the "gas" in an open bottle and set the ɔottle in a pan of hot water.—Chas. Collins, Petaluma, Cal. (H.)

uminum Cleaner—An easy way to lean aluminum is to use lemon, hubarb, quince or tomato quince.— has. Collins.

k Spots—Sour buttermilk will re- nove the worst ink spots.—C. C.

## Pastry and Pastry Desserts

By Mrs. Belle De Graf

Director, Domestic Science Department, Sperry Flour Company.

*Written Especially for Orchard and Farm*

THE most popular dessert in America without a question is some variety of pie and yet only a small proportion of housewives are able to make a rich, tender pie-crust. However, given the right formula, and by practicing a light, quick method of handling, the difficulties attending pie-making may be overcome easily. Good pastry requires a hot oven; the greatest heat to come from below, thus causing the pastry to be light and flaky. However, after it has browned, the heat should be reduced.

Mrs. De Graf

If pastry is placed in a moderately warm oven it will be greasy and indigestible, no matter how carefully the pie has been prepared. Water makes pastry tough, while shortening makes it crisp and tender. Therefore, the fat rather than the liquid, should moisten the flour. The more water used the tougher the pastry.

Handling pastry quickly and lightly is one of the first requirements for successful results. The flakiness of pastry depends largely on the manner in which the ingredients are handled, as well as upon good materials, thoroughly chilled. The colder the pastry is when placed in the oven the crisper and flakier it will be. Pastry is divided into three distinct classes: Plain, flaky and puff pastry. The plain pastry, which is most commonly used, is not difficult to make if the rules are followed carefully.

Flaky pastry is very light, due to the manner in which it is handled. The amount of shortening is the same as that used for plain pastry, but the dough is rolled out and folded to enclose the cold air which expands in the hot oven, making the pastry raise the layers. This pastry is used for pies, tarts and pastry desserts.

Puff pastry, which is used for pastry shells, tarts and fancy pastry desserts, is in a class by itself and requires equal weights of flour and butter. Considerable skill is required in handling, and this type of pastry is seldom attempted by the housewife.

In following the recipes, bear in mind that it will be unnecessary to use any more flour than is called for. If too much water has not been added to the dough, additional flour will be unnecessary when rolling out the pastry. If, however, more flour is needed, use as little as possible, otherwise the pastry will be tough.

### Pastry—Plain, Flaky

Note: All measurements are level and flour is sifted once before measuring. One-half pint measuring cup is used.

| | |
|---|---|
| 1½ cups flour | ½ cup shortening |
| ½ teaspoon salt | ⅓ (about) cup of cold water |

Sift flour and salt together. Chop shortening into the flour, add liquid gradually, using knife. This dough should become stiff enough not to stick to the sides of mixing bowl. Place dough on molding board and roll to one-fourth inch thickness. Then fold one-third of this sheet of pastry over the center, fold another third over the first fold, then fold across. Roll to one-fourth inch thickness again. This pastry can be used at once but is improved if allowed to stand several hours.

### Puff Pastry

| | |
|---|---|
| 1½ cups flour | ¼ cup butter |
| ½ teaspoon salt | ⅓ (about) cup of cold water |
| ¼ cup shortening | |

Proceed as for plain pastry, omitting the butter, which should be washed in cold water until smooth and elastic. Roll out the dough, place butter in the center, fold over dough and roll out. Repeat this twice. Dough is then ready for use. If butter breaks through the dough, set aside until cool, when it can be handled easily.

## Recipes in Which Sour Milk Is Used

(Continued from the February number)

### SOUR CREAM PIE

| | |
|---|---|
| 1 cup sour cream | ¼ teaspoon cloves, nutmeg and ginger |
| ¾ cup sugar | ½ teaspoon of cinnamon |
| 1 egg, beaten | |
| ¼ teaspoon salt | |

Mix cream and sugar together, add egg, salt and spices. Line a pan with pastry, pour in the mixture, cover with pastry and bake in a moderate oven.

### COTTAGE CHEESE

To make cottage cheese, take thick sour milk, turn into a shallow milk pan, filling with hot, not boiling, water; let stand about 25 minutes, then drain through a colander, and pour hot water through the curd until it loses its sour taste and has become contracted, but not hard. Press all the water out, salt and shape into small balls or pack in a mold. If the sour milk is heated on the stove and strained through a cloth, it will not be as palatable or as digestible as by this hot water method.

### RICE WAFFLES

| | |
|---|---|
| 1 cup flour | 2 cups sour or buttermilk |
| ½ teaspoon salt | 1 cup cooked rice |
| 1 teaspoon soda | 2 tablespoons melted shortening |
| 1 teaspoon baking powder | |
| 2 eggs beaten separately | |

Sift dry ingredients. Beat whites of eggs until stiff, the yolks until creamy; add milk and rice to yolks and add gradually to dry ingredients; mix well, and fold in the stiffly beaten whites and the shortening. Cook at once on a well-heated griddle.

### SOUR MILK PANCAKES

| | |
|---|---|
| 2 cups flour | 1 teaspoon baking powder |
| ½ teaspoon salt | 1 egg |
| 1 teaspoon soda | 2 cups sour milk |

Sift dry ingredients. Beat egg, add milk and combine mixtures.

### CORN MEAL PANCAKES

| | |
|---|---|
| 1 cup corn meal | 1 teaspoon baking powder |
| 1 cup boiling water | 1 teaspoon salt |
| 1 cup flour | 2 tablespoons sugar |
| 2 cups sour or buttermilk | 2 eggs |
| 1 teaspoon soda | |

Pour boiling water over the corn meal and let stand until cool. Sift dry ingredients. Beat eggs, add milk, dry ingredients and corn meal. Left-over cooked corn meal cereal may be used to make these cakes.

### BREAD CRUMB GRIDDLE CAKES

| | |
|---|---|
| 2 cups sour or buttermilk | 1 teaspoon baking powder |
| 1 cup bread crumbs | ½ teaspoon salt |
| 1 egg | 1 cup flour |
| 1 teaspoon baking soda | 1 tablespoonful melted shortening |

Soak the crumbs in one cup of sour milk until soft, then beat until smooth. Beat egg until light, add one cup sour milk and the bread crumb mixture; then add sifted dry ingredients. Beat until well mixed and smooth, add shortening and bake at once on a hot griddle.

### GINGERBREAD

| | |
|---|---|
| 2 cups flour | 1 cup molasses |
| 1 teaspoon soda | ½ cup sour or buttermilk |
| 1 teaspoon cinnamon | 1 egg |
| 3 teaspoons ginger | ½ cup shortening |
| 1 teaspoon salt | |
| 1 teaspoon baking powder | |

Mix and sift dry ingredients. Put molasses and shortening into a sauce pan and heat slowly until shortening is melted and mixed with molasses. Beat egg add milk, then molasses mixture and dry ingredients. Bake in well-greased shallow pan or muffin tins in a moderate oven twenty-five minutes.

Gingerbread is greatly improved by adding the grated rind of an orange to the batter before baking. One-third cup chopped walnuts or raisins may be added also.

(Note—Mrs. De Graf's article on salads and salad dressings will be published next month.)

## The School Lunch

WHAT went into Jane's and Jack's lunch boxes this morning? Were they filled with what remained from breakfast, supplemented by some of last night's meat and pie, or were they filled with dainty, appetizing lunches, carefully planned and packed?

Paraffin and parchment paper, jelly glasses, paper cups and containers for moist foods are a great help in packing lunches. With the aid of these, foods can be kept from sticking together and such half-solid foods as sliced raw fruits, stewed fruits, custards, salads and cottage cheese can be carried in perfect condition.

The quality of the bread is of special importance, not only because it is a food in itself, but because it is a means of keeping other much needed foods in appetizing and attractive condition. Wheat bread, whole-wheat bread, corn, rye or oatmeal breads; nut, raisin and date breads, rolls, crisp baking powder or soda biscuit, toast, zwieback and crackers may be used in turn to give variety. Rolls hollowed out and filled with a goodly amount of sandwich filling are tasty and add variety.

Each article should be wrapped separately in waxed paper, and paper napkins or the heavier paper towels are very useful in packing lunches. If no provision is made in the school for serving lunches an extra napkin should be put into the basket to be spread

over the school desk when the lunch is eaten.

In warm weather the use of soft, moist foods in which molds and bacteria can grow rapidly should be avoided. Although chopped meat moistened with a dressing of some kind makes a good sandwich filling, such foods are less desirable in hot weather than slices of meat, peanut butter, lettuce and chopped nuts moistened with dressing, eggs or jelly fillings.

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|---|---|---|---|
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| Last Spring's Prices were | from $6.95 | to | $21.50 |
| *Waists of the Stylish Cotton Fabrics* | *from 98¢* | *to* | *$2.98* |
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| Last Spring's Prices were | from $29.50 | to | $59.50 |
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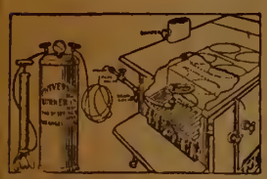

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# PRETTY COSTUMES

*Selected by Isabel Sinclair.*

*These costumes are all simple and can easily be made by the home dressmaker from the patterns provided by this department. To secure any of the patterns send 15 cents in silver or stamps to Pattern Department, Orchard and Farm, 1111 South Broadway, Los Angeles. (It has been necessary, because of rising wholesale costs, to increase the price of our patterns, but they still sell at from 10 to 20 cents less than those obtainable at the stores.)*

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Blouse 3622 cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Skirt 3509 cut in 7 sizes 24, 26, 28, 30, 32, 34 and 36 inches waist measure. A medium size requires 6⅝ yards of 44-inch material. The width of the skirt at foot is 2¾ yards, with plaits extended. Two separate patterns, 15 cents for each pattern.

**3490—Misses' Dress**

Cut in 3 sizes: 16, 18 and 20 years. An 18-year size requires 3¾ yards of 44-inch material. The width of the skirt at foot is about 1⅞ yards. Price 15 cents.

**3496—Girl's Dress**

Cut in 4 sizes: 8, 10, 12 and 14 years. A 12-year size requires 2⅝ yards for the middy and 3¼ yards of 27-inch material for the skirt, collar and cuffs. Price 15 cents.

**3117—Corset Cover**

Cut in 6 sizes: 32, 34, 36, 38, 40 and 42 inches bust measure. It requires 1¾ yards of 36-inch material for a 38-inch size. Price 15 cents.

**3517—Work or Morning Dress**

Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. For medium size 6 yards of 36-inch material will be required. The width at the foot is 2¼ yards. Price 15 cents.

**3505—Child's Short Clothes Set**

Cut in 4 sizes 6 months to 1, 2, 3 and 4 years. A one-year size requires 1¾ yards for the dress, 1⅝ yards for petticoat and ½ yard for drawers of 36-inch material. Price 15 cents.

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Cut in 5 sizes: 3, 4, 5, 6 and 7 years. A 4-year size requires 2 yards of 44-inch material. Price 15 cents.

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Cut in 4 sizes: Small, 32-34; medium, 36-38; large, 40-42; extra large, 44-46 inches bust measure. A medium size requires 4[illegible] yards of 27-inch material without the [illegible]. Price 15 cents.

[Send 15 cents for spring and summer catalog. In ordering patterns write numbers plainly and be sure to give full name and address. Send cash or stamps with your order to ORCHARD and FARM, 1111 South Broadway, Los Angeles, Cal.]

# For Our Boys and Girls

A child-world, yet a wondrous world no less,
To those who know its boundless happiness. —Riley.

KIDDIES, here is the big surprise we promised you—a chance to earn some more Thrift Stamps simply by coloring the picture below. Artist "Hal" has drawn for you an illustration of the landing of Columbus upon his discovery of America.

In order to take part in the contest you must color this picture either with crayons or paints, and mail it with the coupon properly filled out to the **Art Contest Editor of ORCHARD and FARM, 1111 South Broadway, Los Angeles.**

We suggest that you review your history before coloring the picture. You should know what kind of weather Columbus experienced on that great day, and what kind of clothing he and his men and the priest would have worn in that period.

The entries will be judged by Mr. Hahlbeck ("Hal") and some of his fellow-artists, who draw for ORCHARD and FARM. In order to be fair to all who take part, we shall divide the entries into three classes: No. 1, those under 6 years of age; No. 2, 6 to 12 years of age; No. 3, 12 to 16 years of age. Each class will be awarded the same prizes.

You must have your colored drawing mailed by the 15th of March so that we may send the Thrift Stamps and announce the prizes in the April issue. Let us all get busy right away. Won't this be fun?

## *Win a Prize*

**To the boys and girls whose work is adjudged the best, the following prizes will be awarded:**

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## A Toy Airplane

PUSH a smooth, thin stick through a cork, placing the cork about one-third the distance from one end of the stick. Then attach a cork to each end. The center cork acts as a handle for throwing the "glider" and also as a balance.

Into the front cork insert two wing-feathers of uniform size, about seven inches long. These act as the wings of the airplane. Into the other end, or "tail cork," insert five smaller feathers, one straight out at the end, two parallel to the big wing-feathers and the other two upright, between and at right angles to these.—Henry Wittman, Lompoc, Cal.

## My Dog Cart

TO AN axle from an old toy express wagon I fastened a box, making a two-wheel cart. I then attached two wooden shafts to the cart and a strong leather strap which goes across the dog's breast is fastened to each side of the box and another shorter strap over his back is attached to the long strap to hold it up, thus making the harness. Father painted my wagon red. Towser is always ready to take me for a spin.—Albert Richenberger, Chino, Cal.

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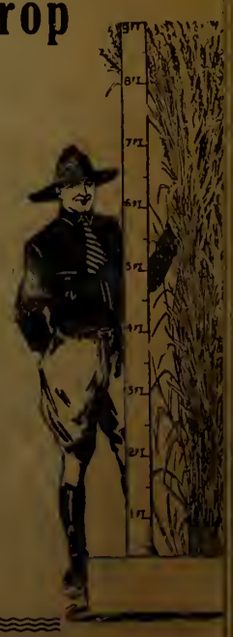

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# YOUR GARDEN of FLOWERS

*by Helen Temple*

In all plant life, and in all nations,
Flowers express their hopes and aspirations.
Teaching us to meet perplexities
How we may live to attain peace.
—H. W. Longfellow

IT would be a difficult matter to choose between the rose and the chrysanthemum if compelled to eliminate one or the other from the flower garden. The varieties of chrysanthemums are many and Nature has endowed them with a wealth of rich colors and unusual size and shape. However, they are easy to raise and respond to proper care more readily than many of the other garden favorites. If properly cut back, pruned, cultivated and budded, they soon enter the ranks of prize winners at fairs.

**Chrysanthemum Pointers**

### Selection of Varieties

The varieties of chrysanthemum often are placed under three heads: The early, mid-season and late flowering. The variety selected by the grower should be that type which is best suited to the particular location, climate and exposure in which they are to be grown.

The Monrovia and Mrs. Wm. Duckham are early yellow varieties, the Nagoya a late yellow, and the Major Bonnaffon a mid-season yellow. Mlle. J. Rosette and Helen Fricke are late pinks, Lavender Queen early, and Wm. Duckham a mid-season pink. Among standard varieties of white chrysanthemums are the Queen, an early bloomer, the Nathan Smith, mid-season, and Jeannie Nonin, late. The Beacher's Crimson begins blooming in August, continuing often until December. These represent only a very few of the many standard varieties.

### Soil and Location

In coast regions, chrysanthemums should be planted in a warm, sunny spot, protected from the wind. In the interior, plant them where they will be shaded part of the day, preferably during the afternoons. If necessary to provide protection build a frame, covered with muslin, over the plants.

The soil for chrysanthemums should be light, sandy and well-drained. Six weeks before planting, turn the soil over thoroughly, spade under as much manure, old leaves and compost, (mixed with a little lime, if possible) as is available, turning the soil over a second time before setting out plants. Do not plant chrysanthemums in an old chrysanthemum bed unless the soil has been well fertilized and worked over.

### Planting and Propagation

Chrysanthemums may be planted from April until the middle of June, although the 1st of April is considered best by most gardeners. Plant in beds about three feet wide, with a five or six-inch ridge to afford flooding, around the edge. They require large quantities of water.

To start new plants, make cuttings of the healthy young growth in the spring. Plant them in beds under glass, using good, clean river sand. The cuttings should be rooted within four weeks, when they should be put into pots, with sandy loam and leaf mold. Keep them in cold frames, or under a glass cover of some kind until six or seven inches high, then gradually expose the young plants to the sun and air, before setting them out, keeping them well watered.

### Care and Cultivation

When the young plants have sent out vigorous growth, spread a layer of well-rotted barnyard manure two or three inches deep between the rows. Chrysanthemums are heavy feeders and this will supply enough plant food for two or three months, when the mulch should be renewed. Chrysanthemums must not become dry. The basin should be filled with as much water as the soil will take up at one time. This should be done twice a week. During warm weather chrysanthemums should be thoroughly sprinkled two or three times a week either before sunup or after sundown. The plants should be dark green, with sturdy stems, but if the foliage turns yellow after this treatment, they are being watered or fertilized too much. Do not water them for a couple of weeks. However, there is little danger of too much plant food and water, unless the soil is unusually rich, and the climate cool.

When setting out chrysanthemums, drive a strong stake at each end of the row with stakes about four feet high through the center, six feet apart. Fasten five or six wires along these stakes, tying the plants with bits of strong cloth to the wires.

(Concluded next month.)

TURN over the soil, spading in composted manure and leaves. The soil will be ready for planting next month. Hoe the beds which are well drained to conserve moisture and save much cultivation.

**What to Do in March**

Plant summer annuals, such as marigolds, phlox, calliopsis, zinnias, antirrhinum, centaurea, cosmos and asters. Do not forget to sow more pansies. March is also a good month in which to replace the old carnation beds and set out violets.

### QUESTIONS AND ANSWERS

WHAT can I do to rid my fern of red spider? It seems to be dying down. How shall I treat it?—Mrs. M. W., Roseburg, Ore.

Spray with soap solution, or concentrated tobacco products. Dilute the latter according to directions on bottle. To make the former, thoroughly dissolve 1½ bars of yellow laundry soap in hot water, then add 3 quarts of cold water. Spray the fern thoroughly. Repeat the following week.

Your fern may need repotting. They should be sheltered and kept moist, provided with good drainage and rich soil. Oakleaf mold, sand and loam in equal portions is best. Perhaps your fern needs washing. Dust clogs the air pores of the leaves and stems.

What kind of package shall I use for marine fertilizer for bulbs?—A. A. G., Oakland, Calif.

Use any kind of tankage composed of ground bone and other waste by-products of the meat packing houses. However, well-rotted manure, if obtainable, is less expensive than the commercial fertilizer.

Please give recipe for preparing row pansies and other sweet-scented flowers for cut flowers.—G. E., Tulare, Calif.

Dry pansies in warm, sheltered situation. In the interior sprinkle with salt. When dry mix with an ounce of different kinds of sweet smelling whole spices and an ounce of the same ground. Keep jar covered part of the time.

How much sand should be used with compost from chicken pens on clay soil for gardening?—A. R., Santa Monica, Calif.

Sea sand, which has not been washed over by the waves for a year or more, has been used successfully. Use one third sand, with two-thirds clay and chicken manure. Do not plant garden until this has been turned over two or three times, exposing to the weather several weeks between turnings. Use as much manure as possible. Chicken manure is the richest of all manures, especially in nitrogen and phosphoric acid.

**Friendly Advice**—"A friend advised me to become a subscriber to the ORCHARD and FARM and I would never be without it."—Mrs. R. E. Harris, Oakland, Cal.

## Dehydrate Peaches

(Continued from Page 31)

the sun was of a more uniformly yellow color, and did not reveal the presence of partially green fruit found in the sun-dried lot.

The dehydrated peaches were accepted by the Winters Dried Fruit Company as first quality at 15½ cents per pound. Some persons, however, experienced only in sun-drying, considered the dehydrated product inferior, using such expressions as "not so meaty," "lifeless," "dull," "dead" and "sickly yellow," which, in reality, meant only that the product differed in appearance and "feel" from sun-dried peaches.

Both before and after the customary processing and packing, unbiased opinion agreed that the dehydrated peaches were cleaner and of a brighter, stronger yellow color. After cooking, differences were much more marked, the dehydrated peaches more nearly regaining their original shape, being a lighter yellow color and having decidedly more of the fresh peach flavor.

### Association's Great Work

The California Peach Growers, Inc., have improved greatly the quality of dried peaches. Sixty-five per cent of their product is now being "practically peeled" by the patented process developed and owned by the company, and sold in cartons under the association label.

The wide-awake grocer realizes that this product is the easiest to sell and that it is not subject to the 5 per cent shrinkage in weight of bulk goods. "Practically peeled" peaches cost only 2½ cents per pound more than ordinary peaches. The California Peach Growers, Inc., now have seven peeling plants in operation and continually are increasing the demand for their product by extensive advertising.

### Future Prospects

In conclusion, it is evident that high quality dehydrated peaches, peeled or unpeeled, can be produced successfully, providing only fully-matured fruit, properly sulphured, is used. Because of the excellent quality of "Blue Ribbon—Practically Peeled" peaches, it seems unlikely that dehydration seriously will invade the sun-dried peach industry. All dehydrating plants, however, should consider the inclusion of peaches in their line of products.

## Dipping Prunes

Will you please give me a formula for dipping prunes before drying?—O. A. Laird, Jerome, Idaho.

### Professor Weldon's Reply

Following is a formula for dipping prunes before drying: 1 lb. of concentrated lye to 20 gal. water. The solution is usually made in a large caldron and is kept boiling hot.

The fruit is put into wire baskets and dipped into the solution, being left for just a short period, or about one minute, after which the basket with its contents should be rinsed in clear water.

The purpose of the lye bath is to split the skin of the fruit to facilitate drying. They are then put on the drying trays, and the sun evaporates the moisture.

Of course there are evaporators in use now which take the place of the sun drying, but a large part of our California prune crop is still dried in the sun.

## Grape Planting Advice

By setting grape vines at least 12x12 feet apart a bigger crop and larger berries and vines will result. It is even advisable to plant them as far as 20x20 feet apart, many vineyardists claiming that larger berries and more tons per acre result when ample space is allowed between the vines.—O. A. Moltz, San Fernando, Cal. (H)

"What on earth has happened to father?" [illegible] only he got my tube of [illegible] instead of the tooth paste."


# *Why Not Pack Your Own Fruit in Your Own Cans?*

For six years the Growers in Southern California have been operating their own plants successfully.

For two years the Santa Clara Valley Growers have had the benefit of this big modern plant.

Last year the peach growers of the Visalia and Modesto districts built canneries for themselves, investing $500,000 in their own business instead of in some one else's profits.

If the canning fruit industry is to continue its forward march, if the tremendous new acreages of peaches, pears, apricots, etc., are to be successfully manufactured and sold to the consumers of the world, it is up to you, the producers of this fruit, to do the job.

*Are you ready to undertake the task? It is a big one. It will require your united efforts, your financial support, your earnest determination to maintain California's reputation for great economic accomplishment.*

We believe you will save from disaster our great canning industry.

Let us tell you more of our plans.

Write at once for full information to Box G, SAN JOSE, CALIF.

CALIFORNIA CO-OPERATIVE CANNERIES

*Owned and Operated by the Growers of California*

*Main Office, San Jose, Cal.*

120-6



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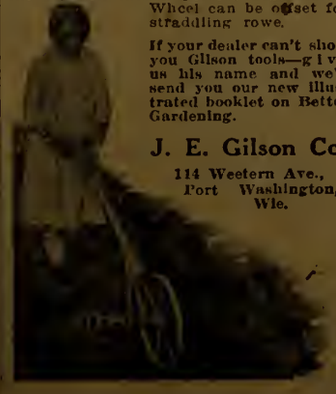
Success in gardening depends largely upon thorough cultivation. Gilson Garden Tools are so designed that they break up the cruet, loosen the soil and let in warmth and moisture. They work so easily that it's positive joy to use them.

**The Liberty Cultivator**

Light, strong, efficient—combining the popular Liberty Hand Cultivator with a wheel frame which lessens labor. The V-shaped cutting edges on the overlapping teeth get the weeds and pulverize the top soil into a perfect dust mulch. Wheel can be offset for straddling rows.



If your dealer can't show you Gilson tools—give us his name and we'll send you our new illustrated booklet on Better Gardening.

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You know it. It is the "Red Crown" sign on garages and service stations. It is the sign of quality in gasoline—the sign of an all-refinery gasoline with a continuous chain of boiling points—insuring ready starting, rapid acceleration and maximum power.

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### TEN PER CENT CASH FOR SMALL FARMS

Ten, twenty and forty-acre farms, $375 to $450 an acre, with water, on terms of 10% cash and easy annual installments. There is double profit here, from products and the rapid increase in values. These lands sell for $2000 and up with matured orchards. EARLIER and BETTER crops because of soil, water and climatic conditions. Three and a half tons of peaches from 3-year-old trees. Seven and a half tons of apricots from 3-year-old trees. No land in California gives better results, at any price.

Carloads of trees now being planted by last year's buyers, all practical fruit growers.

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Close to a prosperous town, on the borders of a splendid lake. State highway and railroad pass through property. Seventy miles from Los Angeles. Many experts believe this will be the highest priced land in Southern California in ten years. The acreage in the district is limited. Write for descriptive information prepared by the Elsinore Chamber of Commerce under supervision of Elsinore Farm Center, or come to our office. Best crops are peaches, apricots, oranges, grapefruit, walnuts, almonds, olives, grapes and alfalfa.

J. B. STEARNS, UEDE JACOBS,
214 STORY BUILDING,
LOS ANGELES.

CARLSBAD-BY-THE-SEA

Here is a district that is making REAL MONEY out of farm products. The secret is this: We produce crops out of season, in early winter and early spring, when no other districts have them to offer.

CARLSBAD PEAS NEVER FREEZE

We are shipping East one or more cars of peas daily at very high prices. Cucumbers are bringing $3.50 per lug; summer squash, $2.50 per crate, etc. This land is selling very fast. Arrange for an early trip to this wonderland. For further information call on or write

SOUTH COAST LAND COMPANY,
E. M. Claussen, Sales Manager,
712 Garland Bldg., 740 S. Broadway
Los Angeles, Cal.

I HAVE 546 ACRE RANCH, located 10 miles east of Montague; 400 acres tillable, all fenced and cross-fenced, most of it hog fence; 100 acres fall wheat, 75 acres alfalfa, 50 acres ready to seed to barley; horse lot or barn lot, good spring in yard with 14x14 concrete house over it, water piped into house; lot garden under water; barn, two chicken houses, running water on place; $35 per acre, half down, time on balance at 6 per cent. J. M. Mashburn, Little Shasta, Cal. M. K. A.

FOOTHILL RANCH FOR SALE—196 acres, 25 acres partly cleared, 50 acres No. 1 fruit land, 60 acres good for hay, 40 acres hog and cattle, 42 acres cattle fenced, 12 acres cross fenced. Four-room house, pump house, small storehouse and pig pen; $3000 worth of uncut oak wood, $400 worth of wood cut; 275 fruit trees, some in bearing; 17 hogs; plenty of water. Price $4200. Address Frank Mason, Tulare County, Cal.

### RAISE GRAPES

Buy 10 acres of our grape land at $50 an acre and have an independent income in three years. Sold on easy terms. You can arrange with us to plant and care for your land until it is producing. Call or write for descriptive matter. LEROY LEONARD, 524 Black Bldg., 4th and Hill, Los Angeles.

MEXICAN LANDS—400 acres in American colony, near Hermosillo and Southern Pacific Railway. Rich river bottom land; will grow anything, two crops each year. Investigate this opportunity to start big farming at small cost. Owner, 329 Ochsner Bldg., Sacramento, Cal.

171 ACRES choice Upland pasture, 5 acres set to Emperor's Grapes, 6 acres set to Almond trees; spring water piped to house and barn. Good buildings. 11 acres under local irrigation ditch. 80 acres could be plowed, easy terms; $16,000. H. M. Little, Rt. B, Box 231, Sanger, Cal.

FOR SALE—58 acres good land with water for irrigation; all under cultivation except 10 acres. Woods pasture, nearly all fenced, also cross-fenced. 10 acres in fruit, mostly Muir peaches; five-room house, barn and other outbuildings. Not far from Red Bluff. Price $8950, $6600 cash, balance mortgage at 6 per cent. Address owner, Box 848, Orchard and Farm, Los Angeles, Cal.

GOOD house, 94-acre dairy, 10 cows, buildings insured; fine water, about 15 bottom. Land ¼ mile highway. Price $5500. Particulars, Box 186, Bandon, Ore.

## FARMS FOR SALE

BIG LAND OPENING
32,000 ACRES
MILLER & LUX LAND

Plowed and planted the first time this year. Buyer gets share of present crop. Absolutely the best land in the State. DEEP, MELLOW, VIRGIN SILT. Grows anything and lots of it. Remarkably level and smooth. Opening price to first settlers

$175 AN ACRE

Located in greatest growing climate in State, Fresno County, near Firebaugh, on highway to Fresno. Land irrigated. Also water furnished for domestic and stock purposes from deep wells. Positively the best chance the land buyer ever had. Go direct to Firebaugh and see for yourself or write KEAMER, LAKE & CO., SELLING AGENTS. Main office, 442 Monadnock Bldg., San Francisco. Branch offices: Escalon, 409 Mattei Bldg., Fresno and Firebaugh.

OREGON—Write for list of stock, grain, fruit and poultry ranches, in the grand Willamette Valley. Henry Ambler, Philomath, Oregon, Benton County.

## COUNTRY PROPERTY—For Sale

FOR SALE OR EXCHANGE—In beautiful Monrovia, 8-room house, for country gentleman's home, 2-acre lot, facing on three streets; high, sightly, mountain and valley views. $18,000. O. Park Smith, 810 Wright & Callender Bldg., Los Angeles, Cal.

GOOD alfalfa and fruit land in Northern Los Angeles County in the artesian water belt $60 an acre, one-fifth cash. Send for circulars. R. & L. Ranch, Fay Bldg., L. A., Cal.

BARGAINS—Send for free magazine. Farms, wild lands for sale. Any kind, anywhere. Western Sales Agency, Minneapolis, Minn.

## GOVERNMENT LANDS

300,000,000 ACRES GOVERNMENT LAND in United States. Send for free descriptive circular of our 100-page book, "The Homeseeker," tells where good farm timber, grazing land is, or send $2 for book direct from the Homeseeker. Dept. 60, 336 S. Broadway, Los Angeles, Cal.

GOVERNMENT land near Saugus; also San Bernardino County. 319 Wilcox Bldg., Los Angeles, Cal.

## FARM LANDS & HOMESTEADS

$2000 TO $2500 PER ACRE—Fine level irrigable fruit and alfalfa land, abundant water, fertile soil, ideal climate close to railroad. Write Chamber Commerce, Wilcox, Ariz.

FOR SALE—120 acres, 6 miles from Marshfield, Oregon. $20 per acre; easy terms. Dr. J. W. Welch, Silverton, Oregon.

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WANTED—To hear from owner of good ranch for sale. State cash price, full particulars. D. F. Bush, Minneapolis, Minn.

WANTED to hear from owner of farm or unimproved land for sale. O. K. Hawley, Baldwin, Wisconsin.

## REAL ESTATE—Sale or Exchange

IF YOU WANT to sell or exchange your property, write me. JOHN J. BLACK, 110 St., Chippewa Falls, Wis.

## PERSONAL

MARRY. THOUSANDS CONGENIAL COUPLES, worth from $1000 to $50,000, seeking early marriage; descriptions, photos, introductions free. Sealed. Either sex. Send no money. Standard Cor. Club, Grayslake, Illinois.

MARY LEWIS.
Did you ever hear about her? We have a wonderful surprise waiting for you. Send a dime today and let me send you this surprise at once. Manager, Berrydale Gardens, 1715 Webster St., San Francisco, Cal.

## MISCELLANEOUS

FOR SALE—
Rare paper from Europe on silk culture; drawings for the filature and choice mulberry seeds. Mrs. S. R. Bellany, 256 Fifth ave., San Francisco.

OKLAHOMA STARTER YEAST—World's best, cheapest and handiest yeast. Makes best bread. Guaranteed. At grocers or mailed, 25c. STARTER YEAST MFG. CO., VERSAILLES, ILL.

500 NAME AND ADDRESS STICKERS printed for 35c, 1000 for 60c. R. Brooks, Arkansaw, Wisconsin.

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DANCING—Old-time dances as well as modern dancing at Carl F. Horn's School of Dancing, Eighth and Spring Sts., Los Angeles. Every Thursday, old-time dancing. Every eve. but Thurs., modern dancing. Beginners' lessons, $1; advance, 10 lessons $2.

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SAVE one half on slightly used implements. Good assortment. Trades considered. Cash or time. ARNOTT & COMPANY, 112 South Los Angeles st., Los Angeles.

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Flat white, $2.25 a gallon. Weatherproof roof coating, 55c gallon. Best house paint $2.50 gallon. Outside white, $3 gallon. Linseed oil, white lead at wholesale. Our products are the best. Our prices are the lowest. SEE US FIRST. WE SHIP EVERYWHERE.
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150,000 ROLLS OF BEAUTIFUL PATTERNS AT SPECIAL PRICES TO MAKE ROOM FOR FALL STOCK.
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House paints, $2.25 and up, enamel, $3; flat white, varnish and floor paint, $2.25; house stains, 50c, sub-turps, 65c.
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We carry a full line of roof and house paints.
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REGISTERED Toggenburg grade does; hornless, chocolate color, with usual white markings; 4 years old, 3-quart, bred to California Prince, No. 1765, will be fresh February 10, 1921, price $75. Another grade doe, hornless, color same as above, 2 years old, bred to California Prince, No. 1768; will be fresh first time February 16, 1921; price $60. Crates $5 extra. Dr. W. L. Goldberg, Sebastopol, Cal.

FOR SALE CHEAP—185 fine young ewes, 1, 2 and 3 years old, are bred to our State Fair and International Champion Romney Rams (finest in America). About 30 have already lambed, balance soon. Have year's wool, fat and heavy shearers. Price $8 per head. Tribble Bros., Lodi, Cal.

FOR SALE—Hornless Toggenburg Doe (3 quart when fresh), bred to imported sire. Also 10-months-old doe and buck from imported stock (perfectly marked), none better. Address J. M. Benham, Burson, Cal.

FOR SALE—Utility goats for starting herds; all prices. J. F. Farmer, 1667 N. Lake ave., Pasadena, Calif.

## LIVESTOCK—Poland China

BETTER-HATCHED CHICKS—S. C. White Leghorns, R. I. Reds. Our chicks are bred right, hatched right, priced right, delivered right and they grow right. Hatch each week. San Diego Co. Hatchery, San Diego, Cal. R. 1.

## LIVESTOCK—Duroc Jerseys

A FEW CHOICE GILTS bred or open; weanlings, either sex. Breeding and satisfaction guaranteed. H. E. Boudier, Napa.

## LIVESTOCK—Guernseys

WILL SELL part of our purchase of Judge Lindley's Guernsey herd. Imported and domestic registered Guernsey cows, heifers and bull calves. Brown Bulb and Seed Ranch, Capitola, Cal.

## TAXIDERMY—FUR DRESSING

FURS tanned, made up; game trophies mounted. Address "Parcels," H. F. Lorr.

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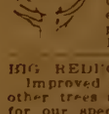
SMALL-SIZED TREES cheap. LOOK! A big bargain in small-sized trees, just the thing to plant in dry sections or hilly land. We have 150,000 small-sized trees. To clean up we offer them at 35c each, $30.00 per 100, larger quantities 25c. We cannot give here all the kinds, so ask for what you want, no doubt we can ship it. Here are a few of the good ones: Callimyena Fig, Black Mission Fig, Purple Fig, Jefferson Plum, Coe's Golden Drop, Silver Prune, French Prune, Imperial Prune, Bartlett Pear, Winter Pear, all varieties Apples, Tuscan Cling, Sly Crawford, Elberta, Hiley, Belle, Georgia, Red Bird Cling, Early Rose, Carman, Mayflower, J. H. Hale, Late Crawford, Phillips Cling and other Peaches and other trees. Three thousand Black Walnuts. Fancy table and Raisin Grapes. Tokay, Malaga, Sultana, Thomas Seedlies, Emperor, 25c each, 15 for $2.00, $6.00 per 100, 5c each by thousand, or 4c by ten thousand. We can ship an amount, one to one million. Also have fifty thousand Wine Grapes. Grapes on resistant root. Send in your order or ask for price list. Sonoma Seed & Nursery Co., Santa Rosa.

TEN THOUSAND VALENCIAS, TWO THOUSAND EUREKA LEMONS, FIFTEEN HUNDRED ELBERA PEACHES at special price. THREE THOUSAND MISSION OLIVES, FIVE HUNDRED WONDERFUL POMEGRANATES, ONE HUNDRED THOUSAND FLORIDA SOUR STOCK, ONE HUNDRED THOUSAND SWEET ORANGE SEEDLING STOCK. SOUTHLAND NURSERIES, 1941 East Colorado St. Phone Colorado 6012, Pasadena.

$1400 PER ACRE FROM RHUBARB first season after planting received last season by Glendale grower through Rhubarb Association. Association been getting $2 per 30-lb. box since Jan. 25. Plant this month make bids spring. Best intercrop for young orchard. Write at once for full information. W. A. LEE, Route 1, Covina, Cal.

CAROB TREE

The tree with a great future in California. Send $2 for two small trees, 4 California Carob pods, 4 Italy "Imported," oz. of Carob flour. "The Future of the Carob Tree in the Southwest," and our tree contract growing plan. Jas. W. Brown, Rialto, Cal.



Plant the aristocrat of all vegetables, the Globe Artichoke. Will fruit each year for your lifetime, without cultivation. Ornamental foliage, used to hide unsightly places, fence corners, etc. Large plants, 25c each, $1 per doz. Smith's Nursery, 8[illegible] Beach ave., No. Inglewood, Cal.

BIG REDUCTION—
Improved French prune, Bartlett pears and other trees and vines. Submit list of wants for our special prices. We ship anywhere on approval. J. F. Miller & Sons, Healdsburg, Calif.

CORY THORNLESS Mammoth Blackberry. Write for descriptive price list. Get your plants from the grower. Wm. Mortenson, Rt. A, Box 209, Lodi, Cal.

CUTHBERT RASPBERRIES, $12.50 per M, of $2.00 per hundred. F. O. B. Alvadore, Ore. E. P. Saunders.

FOR SALE—Apricot seedlings. J. C. Hayes, R. 1, Box 183, Hughson, Cal.

## FLOWER SEEDS

CHOICE selected seed from the largest and best. Packet, 50c, will make a real flower garden of all colors in three to four months from planting. G. S. Archer, 400 No. Marengo Ave., Alhambra, Cal.

## FIELD SEEDS, GARDEN STOCK

SWEET Spanish Onion Seed. Guaranteed true to name. Grown near Riverside. 60c oz., $6 lb. prepaid. E. Duckett, 432 Cornwell St., Los Angeles.

"OUR Introduction—Wonderful New Hybrid Alfalfa. Write J. L. Lawson, Reliable Tree and Seedman, San Jose.

## STRAWBERRY PLANTS

STRAWBERRY PLANTS—Progressive Everbearing, $1.50 per 100, prepaid. Oregon Improved, Magoon, Gold Dollar, Premier $5.00 per 1000. Wilson, $4.00 per 1000. J. W. Vinacke, Canby, Oregon.

PRODUCTIVE EVER-BEARING STRAWBERRY. Plants Idaho grown; 25c dozen prepaid. Evergreen Plantation, New Meadows, Idaho.

## GRAFTING WOOD

FOR SALE—Selected Walnut Grafting Wood. Payne, Eureka, Mayette and Franquette, 10c a foot. A. C. Kuhn Ranch, San Jose, Cal.

WALNUT Grafting Wood for sale. All the leading varieties. Dr. W. W. Fitzgerald, 625 N. Madison St., Stockton, Cal.

## FRUIT AND NUTS

EXPRESS PREPAID, any address, 1 lb. walnuts $1.00, 1 box 40 lemons, $[illegible], 100 baby chicks, blooded stock, for $22.[illegible]. [illegible] Vance, Santa Barbara, Cal.

# FARMERS' CLASSIFIED MARKET PLACE

## POULTRY

CAPACITY 170,000 EGGS
30,000 CHICKS EVERY WEEK

The spring season will soon be in full blast now and we are prepared to take care of our customers on any size order.

Entirely an electric hatchery, insuring you the best chicks from the best eggs; properly handled, honestly counted (two extra chicks to the hundred); promptly delivered by parcel post or express anywhere within 72 hours' run from Los Angeles.

We surely have your favorite breed in the following kinds: Rhode Island Reds, Barred Rocks, Anconas, Black and White Minorcas, White or Silvered Laced Wyandottes, Brown Leghorns, Buff Leghorns; also our dependable Oregon McFarland White Leghorns.

Pekin ducklings and baby turkeys.

Why not send for price list and place your order for early delivery?

REDWING HATCHERY,
2030 E. Florence Ave. Los Angeles, Cal.
Phone South 5035W.

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DON'T BE TOO LATE booking 200-egg strain chicks! Customers say: "Pullets raised from your chicks averaged 209 eggs last year." "114 hens cleared $612 in 12 months." "Never saw chicks grow faster." "My 30 pullets laid at 4½ months, cleared $20 January." "Get more winter eggs from 50 of your hens than from 200 formerly." 140,000 ELECTRICALLY hatched 180-290-W. B., Buff Leghorns, Reds, Anconas, B., W., Rocks, B., W., Minorcas, Andalusians (ducklings, turks); often clear customers $6. Half booked, reasonable. Hundreds satisfied customers, repeat orders often. Write (rarely home), W. Beeson, Pasadena.

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COCKERELS, White Leghorns from 240 to 280 egg hens mated to socks of the 280-egg type. Bred for 17 years for vigor, heavy laying and standard requirements. Trapnested and Hoganized. McFarlane and Barron strains. Hatching eggs and chicks. A. Worel, R. D. 3, Napa, Cal.

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BABY chicks from my pure bred, heavy laying flock of S. C. White leghorns, carefully selected for standard and laying qualities. Orders for spring delivery booked now at $15 per $100, $70 per 500. Write for particulars. Order early. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

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WHITE LEGHORN BABY CHIX from heavy laying HOGANIZED stock. Safe arrival of full count, live, strong chix guaranteed. Prics for April, May and June $14 per 100. The Pioneer Hatchery, 418 Sixth St., Petaluma, Cal.

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ATKINSON'S Anconas and White Wyandottes, heavy laying, prize winning; cockerels, breeding stock, hatching eggs, baby chicks. At reasonable prices. Catalogue free. J. W. Atkinson, 130 Willard Ave., South, San Jose, Cal.

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CHICKS HATCHED ELECTRICALLY are the best. They have the "pep," therefore easier to raise, grow faster, develop into layers sooner. Write for prices, catalog and information. Petaluma Electric Incubator Co. Petaluma, Calif.

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FINEST HATCHERY IN THE WORLD. White Leghorn baby chicks, hatched right in $60,000 brick and concrete hatchery from our trapnested and Hoganized heavy layers. PEBBLESIDE POULTRY FARM, Sunnyvale, Cal.

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CELEBRATED Santa Cruz Baby Chicks, "Blood Will Tell." We hatch from our own heavy laying strain of Single Comb White Leghorns. Shipping to all points. Dependable Hatchery, 16 Grant Ave., Santa Cruz, Cal.

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THOROUGHBRED utility S. C. White Leghorn chicks from heavy layers, Hoganized and trapnested stock, 100 or 1000 lots. Write today for hatching dates and prices. Forster Brothers, 2918 Otis St., Berkeley, Cal.

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BABY chicks—White Leghorns. Bred to lay lots of eggs. Early maturing. Satisfaction guaranteed. Write for prices. Hatch very eleven days. John F. Forney, Box 93, Kingsburg, Cal.

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BABY CHICKS every week. Barred Rock, R. I. Red, Black Minorcas, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. Tobener Hatchery, Route Box 306, San Jose, Cal.

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BABY CHIX—T-A-N-C-R-E-D-S, 300 egg White Leghorns, Barred and White Rocks, R. I. Reds, Buff Orpingtons, Black Minorcas, Anconas, Golden Buff and Brown Leghorns. Leech Crews, Seabright, Cal.

---

WHITE MINORCA AND SILVER CAMPINE baby chicks and hatching eggs. Best on Pacific Coast. Leech Poultry Farm, Baldwin Park, Cal.

---

RHODE ISLAND REDS. White Leghorns selected 12 years for egg production. 15 eggs, $2 postpaid. Loring N. Kirk, Davis, Calif.

---

HOGANIZED Rhode Island Red eggs for hatching, $2 for 15 or $10 per hundred. Beeching, 1578 W. 46th St. Los Angeles, Cal.

---

Anconas Stock and Eggs. Write [illegible] J. R. Huddleston, 342 Edge[illegible] Los Angeles, Cal.

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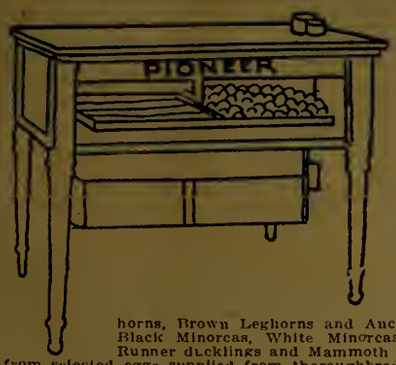
[illegible]Z Hatchery. Established 1910. [illegible] select stock of best layers. [illegible] White Leghorns a specialty. [illegible] Minnie St., Santa Cruz.

## POULTRY

## POULTRY

# Pioneer Incubators---Baby Chicks




Immediate delivery can be had on Pioneer Incubators in 540, 270, 135, 110 and 72-egg sizes, either electric, gas or coal oil machines; these are absolutely the best incubators made and when better ones are manufactured we will handle them.

Also fireless brooders in 100, 50 and 25-chick sizes. Pioneer hot water brooders in 200 and 100-chick sizes. Kresky brooder stoves, 500 to 1500-chick sizes. "Chic-Elec" electric hovers, 150 to 600-chick sizes. "Reliable" Blue Flame hovers, 100 to 500-chick sizes. Cycle hatchers, the best 50-egg incubator on the market. Poultry supplies, remedies, feeds, etc., always on hand.

**BABY CHICKS—**
**35,000 EVERY WEEK**

We can supply baby chicks in any quantity and can handle single orders in 5000 lots of R. I. Reds, Barred Rocks, White Leghorns, Brown Leghorns and Anconas; and we will have a limited supply of Black Minorcas, White Minorcas, White Rocks, White Wyandottes, Indian Runner ducklings and Mammoth Bronze turkeys. All our chicks are hatched from selected eggs supplied from thoroughbred flocks owned by experienced breeders who have been connected with us since we first started in business fifteen years ago. Send for price lists and catalogues and place your order soon to avoid disappointment on delivery. Finest incubator, brooder and baby chick display in the city. Visitors welcome at all times.

**PIONEER HATCHERY, 320 So. Spring St., Los Angeles, Cal.**
"WORLD'S LARGEST BABY CHICK HATCHERS."

# Hart's New Brooder

My brooder plans tell how to make a brooder for 100 to 500 chix. Use one burned oil cook stove for heater. I threw out my coal and distillate stoves when I invented this system. No thermometer or hermostat needed. No overheating, chilling, worry or grief. No burnt air in the brooder room or hovse. Don't need to teach chix to roost. A child can operate it. Very simple. Turn any old shed into a brooder house. Directions for new house. Feeding directions for chix tells not only just what to feed, but exactly how much—right to the ounce—no guesswork. No gapes, toe-picking, leg weakness, diarrhea, etc., in our chix.

My book also contains my feed formulas and methods that save me 25c to 50c a hen a year, and produced fourteen 300-egg hens out of 450 pullets. How I fed a test pen of 90 pullets one grain feed a day and got four 300-egg hens. Other items are: Self-feeding hoppers that are wasteproof (my new idea may work on your hoppers to make them wasteproof). Artificial dropping board with miteisss roosts. No. 1 mite paint at 10c to 25c a gallon. Wet mash mixer for 500 to 1000 hens for $1. Valuable items on feeding and culling. How I selected the pullets from the general flock to be trapnested at Salem that made so many high producers.

## Hart's Poultry Book With Brooder Plans $1

Remember this: Your money back if not satisfied with the book. Over 700 sold last spring. This Journal guarantees this ad. You can't lose.

W. H. HART, R. 3, Box O, Beaverton, Ore.

# Hanson's S. C. W. Leghorns

**Win in Egg Laying Contests.**
**Now First at Santa Cruz.**
**Pullet Flock Average 221 Eggs.**

## J. A. HANSON,
## Corvallis, Oregon

---

BABY CHICKS — Purebred Schlotthauer Strain Single Comb White Leghorns, bred to lay. All breeding stock carefully selected and Hoganized for thirteen years to insure heavy laying and strong, hardy chicks. Guaranteed safe delivery, and full count. Write for booklet. White Plumage Poultry Farm and Hatchery, Exster, Cal.

---

SICILIAN BUTTERCUPS. The coming breed, are making friends everywhere. Profitable to keep, pretty to look at, tame to handle. Too busy laying to sit. Cockerels, settings. Send for mating list and descriptive circular.
A. L. CAVANAGH,
Box 287. Sawtelle, Calif.

---

BABY CHICKS.
From my heavy laying strain of pure blood White Leghorns, males, from trapnested hens of egg records. 250 eggs per year and over. Also Silver Campines, Brown Leghorns, Anconas. Oak Knoll Poultry Ranch, T. E. Blake, Santa Cruz, Cal.

---

WARD'S SINGLE COMB REDS
win at the 1920 State Fair, 4 Firsts, 2 Seconds, 1 Third, 11 Specials. Reds largest class in show. Hatching eggs, cockerels and pens. WARD'S POULTRY FARM, 39-B South Lincoln Ave., San Jose, Calif.

---

WHITE Leghorns—Hatching eggs our specialty. Produced right, selected right, shipped right; 100 per cent fertility guaranteed. No better stock in the west. Prices very reasonable. No chicks. Curtis White Leghorn Ranch, R-1, Box 29, Gardena, Cal.

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WATCH US GROW—"Quality Chicks." We are now booking orders for the season of 1921, white and Brown Leghorns, R. I. Reds and Barred Rocks. Order early. E. W. Ohlen, Campbell, Cal.

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FREE book, "CHICKENS FROM SHELL TO MARKET," on application to Coulson Company, Petaluma, Cal.

---

BUY EARLY CHICKS.
Early hatched chicks are the best always. They are stronger, much easier to raise than late chicks, mature and lay earlier, develop into larger and better birds. We are now booking orders for early hatched chicks. Do not fail to place your order in time for the early hatches. Several varieties, from our own breeding pens. Circular sent upon request. Beresford Poultry Farms, San Mateo, Calif.

---

BABY CHICKS—EGGS—Hoganized White Leghorns (none better), Brown and Buff Leghorns, utility Rhode Island Reds and Barred Plymouth Rocks, choice Anconas, Black Minorcas and Blue Andalusians, bred for heavy egg production. Free folder. Order early. McDonald Poultry Ranch and Hatchery, Route 1, Box 246, King Road, San Jose, Calif.

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BARRED PLYMOUTH ROCKS—"Nothing better in poultry." Wonderful layers. Hens and pullets for sale; also choice cockerels that will improve your flock. Now booking orders. Have made a specialty of Barred Rocks for over twenty years; "that's why" our birds win at all leading shows. Catalog free. Vodden's Rockery, Los Gatos, Cal.

---

BABY CHICKS—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. Schellville Hatchery, Schellville, Sonoma County, Cal.

---

WHITE Minorca Cockerels, Leech strain, Hoganized; also hatching eggs, same strain, $2 setting. H. W. Thompson, R. 13, Los Angeles.

---

BABY CHIX, hatching eggs, Reds and Leghorns, from world's record layers. Elmhurst Poultry Farm, 5217 T St., Sacramento, Cal.

---

MINORCAS, black, white, utility and exhibition. Eggs. Catalog free. C. E. Murray, Route 1, San Diego, Cal.

## POULTRY

SPECIAL DELIVERY BABY CHICKS

We have the following varieties of thoroughbred chicks every week: White Leghorns, Anconas, R. I. Reds and Barred Rocks. All chicks are from carefully selected eggs and rigidly culled flocks.

This year all chicks are sent by Parcel Post Special Delivery, thus delivering at your door chicks in the best possible condition and in the shortest length of time.

You should send for price list and put your orders in early.

ORANGE COUNTY HATCHERY, Harold C. Hebard, Prop., Santa Ana, Calif.

---

**WHY**

Because they are properly hatched and handled and we can supply chicks

EVERY DAY

—We guarantee a full count of live chicks at destination on lots of 25 or more.
—Poultry—all breeds. Send for Price List.
—EVERYTHING IN HAIR, FUR AND FEATHERS.

FANCIERS' EXCHANGE
640 S. Main St. Los Angeles, Cal.

---

EGGS FOR HATCHING—S. C. White Leghorns for sale. Hens laid 600 eggs from February 5 to September 5; pullets laid first 4 months and 3 days old, $2.00 for 15 or 600 for $100. Cockerels for sale, $3.00 and up. This is Rancho Del Martino Strain. Riverside Ranch, R. R. Box 152A, Oakdale, Calif.

---

GET CHICKENS NOW and have layers for next winter, when eggs are high. Hatches every week. Prompt, reliable service. Safe arrival of vigorous chicks from good layers guaranteed. Hatched by electricity. White and Brown Leghorn, R. I. Red, Barred Rock. Reasonable prices. Stubbs Poultry Ranch and Hatchery, Box 67-B, Palo Alto, Cal.

---

S. C. ANCONAS, baby chicks, hatching eggs. First prize winners L. A. Stock Show and Oakland, 1920. Special ribbon for best male. Utility eggs, $2.50 per 15. Baby chicks, 25c. Write for mating list. Mrs. George T. Higgins, 126 E. Ave. 37. Phone Lincoln 333, Los Angeles.

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BABY CHICKS—Barred Rocks and Reds from bred-to-lay stock. 10 Rock pullets laid 1987 eggs in one year; 25 chicks, $5.50, $10; 100, $20. Choice hatching eggs $2 per 15, sent by parcel post prepaid. Send for circular. Hargett & Son, Route 2, Compton, Cal.

---

SLY'S OLD MISSION STRAIN RHODE ISLAND REDS. My customers won highest honors at various California shows last season. See testimonials in new catalogue now ready. Six ideal matings. Hatching eggs at reasonable prices. NO BABY CHICKS. A. G. Sly, 1642-J, Middleton Place, Los Angeles.

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BABY CHICKS
CORRECTLY hatched chicks, from carefully selected hens. Safe delivery guaranteed. White Leghorns, Anconas, Rhode Island Reds, Black Minorcas and Blue Andalusians. Write for prices. The White Leghorn Hatchery, 951 East Second St., Pomona, Cal.

---

S. C. WHITE Leghorn Baby Chicks from our own bred to lay stock. Now booking for January to July delivery. Our prices are right. Model Poultry Farm, W. C. Smith, Prop., Corning, Cal.

---

SINGLE COMB BLACK LEGHORNS. Combined beauty and utility. Why? Write for circular. Hatching eggs, etc. Fred Turnbull, Box 108, Alameda, Cal.

---

CHEAP CHIX.
Our specialties: R. I. Reds, Barred Plymouth Rocks, Black Minorcas; $17 per 100. Denton Poultry Yards, Campbell, Cal.

---

ATASCADERO Poultry Farms, owned by Lewis Foundation Corp. S. C. White Leghorns, Rhode Island Reds, baby chicks. Henry Miller, Supt., Atascadero, Cal.

---

WHITE Leghorn baby chicks booked for February. Straight Tanered strain. Excellent layers. 35 years a breeder. Henry Tarratt, Corning, Cal.

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"EASTMAN'S BRED-TO-LAY" trapnested Barred Rocks. JANUARY CHICKS. Fairmead Poultry Farm, Fairmead, Cal.

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C. W. ANGIER'S "Ringlet" Barred Rocks are now on his ranch at La Crescenta, Cal. A great egg strain. Eggs $3 per 15.

---

PUREBRED Kellerstrass White Orpington cockerels; also eggs for hatching. Mrs. Nora Gordon, 3593 Utah st., San Diego, Cal.

---

ANCONAS, hatching eggs, $2.50 per 15; $6.00 per 50, delivered. Cockerels. No chicks. A. Wilkinson, Winton, Cal.

---

EGGS from beautiful Blue Orpingtons, first prize winners, $5 for 14. Nellie Mehl, 1220 McCadden, Hollywood, Cal.

---

BLACK Leghorns, Yellow Legs, real Leghorns, Silver Campines, good sizes, white eggs, $2 per 15. A. C. Hayes, Cuporting, Cal.

**Classified Ads Continued on Page 42**

## TOP DRESSING TALK NO. 4

*Fertilizing the Orchard Cover Crop*

The economical way to build up and maintain the organic matter content of your orchard soils is to properly fertilize the cover crop.

The picture above shows the effect of fertilizer on a cover crop of sweet clover in the prune orchard of the Blauer Ranch, Saratoga, Cal. No fertilzer was applied to the rows on the left, while the trees in the right-hand row each received *3 pounds Sulphate of Ammonia*, 5 pounds acid phosphate and 3 pounds Sulphate of Potash.

The yields of prunes per acre in 1919 were:

| | | |
|---|---|---|
| No fertilizer | 3780 pounds; | value $415.80 |
| Acid phosphate and potash | 5076 pounds; | value 558.36 |
| Acid phosphate, potash and Sulphate of Ammonia | 8856 pounds; | value 929.88 |

**Arcadian Sulphate of Ammonia**

Kiln dried and screened, 25¼ units ammonia guaranteed, all soluble, quickly available and non-leaching. Does not injure the physical condition of the soil.

Arcadian is the Great American Ammoniate for top-dressing all crops needing nitrogen.

*Order Arcadian from your dealer and write us for free instructive booklets.*

*For information as to application, write Desk No. 7*

The Barrett Company Agricultural Department

510 First National Bank Building, Berkeley, Cal.

A&M reliable SEEDS

FOR FIELD and GARDEN

Send for Our 1921 CATALOG

*Ask Your Dealer for Our Seeds*

Aggeler & Musser Seed Company

620 South Spring Street, Los Angeles

McKAY POWER LIFT DISC PLOW AND SUB-SOILER

Especially designed for hard ground; subsoil attachment breaks up the hard pan, furnished with power lift, 1 to 4 disc for field or orchard use. This plow conserves moisture—pulverizes the soil. Write for complete description. Call and see these plows when in the City

ARNOTT & COMPANY, Inc.

112 S. Los Angeles St. Los Angeles


# Putting It Over With Clover

(Continued from Page 9)

a commodious implement shed complete the quota of farm buildings.

The Alfred Abraham place is one of the show places of the Willamette Valley, on account of the fine house, good fences, heavy crops of grain and clover seed produced, and the neatness, system and enterprise which characterize the management. The farm, with equipment, is valued at $50,000, but the owner says he would rather buy more land than sell, being out of debt and having money in the bank.

FORESIGHT, NEATNESS AND GOOD EQUIPMENT

THE Abraham binder usually is the first in the field at harvest time, experience proving that it pays to begin cutting wheat when it is a little green, because otherwise much of the last cutting is lost through shattering of over-ripe grain.

Order and neatness are two other Abraham characteristics. A year ago a fine woven wire fence, supported by cement posts, painted white was built along the road in front of the farm and for a distance of 60 rods along one side. This is perhaps the best and finest looking farm fence in Oregon. It offers a pleasing contrast to the old fence-rows, overgrown with weeds, brush and briars, which are so disgracefully common in the Willamette Valley.

The cement posts are seven feet long, five inches across the top and six inches at the bottom, reinforced with three one-fourth-inch steel rods laid near the center. The posts cost 50 cents each. They are shaped like a wide "D," flat on one side. The woven wire fence is fastened to each post in four places with No. 12 wire.

A barb wire is stretched a few inches above the woven wire, which is of the hinge type, permitting the wires to fly back in place after being pressed down. This makes a practically perfect, indestructible fence, well worth the cost of building. The corner posts are of cedar, twelve inches square and set three feet deep in cement.

## Flax May Come Back, Say Experimenters

A 20-ACRE experimental plot of flax is to be planted during the coming season, by the California Experiment Station, in co-operation with the Sutter Basin Co., in Sutter Basin, 20 miles northeast of the University Farm at Davis. Professor George W. Hendry of the Agronomy Division at Davis is in charge of the project.

The high market price of linseed oil, Professor Hendry states, affords excellent promise of a revival of flax growing, which at one time had a definite place in California's agriculture.

"Flax has been grown experimentally at the University Farm for about six years," said Professor Hendry in discussing the crop, "and during that period we have tested more than a score of oil and fiber producing varieties. We have found that by the careful selection of varieties and the use of proper cultural methods, satisfactory and profitable yields of flax seed may be produced in the vicinity of Davis, without the aid of irrigation.

### Earlier Experiments

About 20 years ago, California produced approximately 30,000 bushels of flax seed annually, the principal areas of origin being Rio Vista, Biggs and Pescadero. The seed was of good quality, and was bought by a local oil and lead works. The total production, however, was not sufficient to warrant the operation of the mill in San Francisco, and the firm which was the principal buyer discontinued purchasing of the seed. Since that time there has been no market for flax seed in this State. Consequently there has been no commercial production. The farmers' only market at present would be the Portland Linseed Oil Works at Portland, Oregon. This concern now uses large quantities of seed, most of which comes from Montana and Northern China. The prevailing market prices make flax seed production remunerative to the farmer.

### Methods of Culture

Satisfactory yields have been obtained at the University Farm by drilling the seed in February in a well-prepared fall-plowed soil, using an ordinary grain drill, set to drop about 30 pounds of seed per acre. Summer-fallowed land may be fall planted successfully, soon after the first rains as flax is a hardy crop and will withstand as much frost as barley.

Yields at the University Farm have ranged from 500 to 1500 pounds of clean seed per acre, depending upon the variety and the season. February seeded flax is in condition to harvest during the latter part of June, and may be cut with an ordinary grain or row binder, or with a combined harvester modified for the purpose. Bound flax may be threshed in an ordinary grain separator, but must be recleaned prior to shipping to the crusher.

"At the present time, we are doing some experimental work in the utilization of the straw flax after harvesting as a by-product to be used in the manufacture of electrical insulating paper," concludes Professor Hendry.

## Tractor Salesman

(Continued from Page 26)

until it was again ready for the field. Usually he wasn't trained for shop work. He worked without any co-operation with other drivers, or other machines of the same model.

### The Better Plan

"Let's change all this," said the salesman. "Get one high salaried master mechanic to take the responsibility for the whole fleet. Put ordinary laborers on the machines in the field with no other duty than to work the levers and wiggle the throttle. Concentrate the supervision. Keep all the machines at work but one, and have that one in the shop being groomed to top efficiency. Buy all machines of the same model and keep on hand a small stock of repairs that will fit any one of them." Simple—and it worked. There are a score of companies in California today that follow this scheme. Yet it was only the hunch of a bright salesman.

### Assistance in Financing

There was one farmer who had a fine opportunity to lease a productive acreage of land adjoining his own. But he did not have enough horses to work both farms, and money was tight. A wide-awake salesman found a market for the horses, helped him get enough more money from the bank with which to buy a tractor and found a steady young fellow to drive it. That farmer was well on the road to financial independence within two seasons.

A few years ago, down in the best country, there was no tractor in the market with the power economically to pull a beet plow during harvest, yet with treads narrow enough to go between the rows. One factory soon developed and offered a satisfactory machine. The rough design had been worked out by a salesman.

Most factories depend largely on their selling force to report on the success or failure of new equipment and changed designs. A criticism reported to a salesman is sure to be promptly and intelligently presented to the proper department of the home office. It is a fact that it is harder for the production department to sell a new model to its field force than to the farmer. They are critical to a degree, and it is humanly impossible for them to kindle enthusiasm for a machine that they do not implicity believe in.

### Use the Salesman

Make use of the salesman. Put him to work for you before you buy, after you buy, or even if you do not buy. Get his ideas as to the proper tools to use on patent clarifiers or spring draw-bars; what to do with your second-hand material; the correct load for your size of machine; the company of your driver. Perhaps you will not see fit to follow his suggestions, they are sometimes biased and far from infallible. But there is hardly a problem you will face upon which your tractor salesman will not have a refreshing viewpoint. Ten to one he can tell you how someone else has answered the same question!

---

**Steerable Grain Drill**—An implement manufacturer has developed a new type of one-horse grain drill, which can be steered. It trails the horse perfectly, according to the inventor, and is capable of making short turns without wasting space in drilling. The user may ride on the grain box. It is adjustable for width of row and depth of sowing. Furthermore, it may be used as a combined grain and fertilizer drill and with fertilizer attachments.

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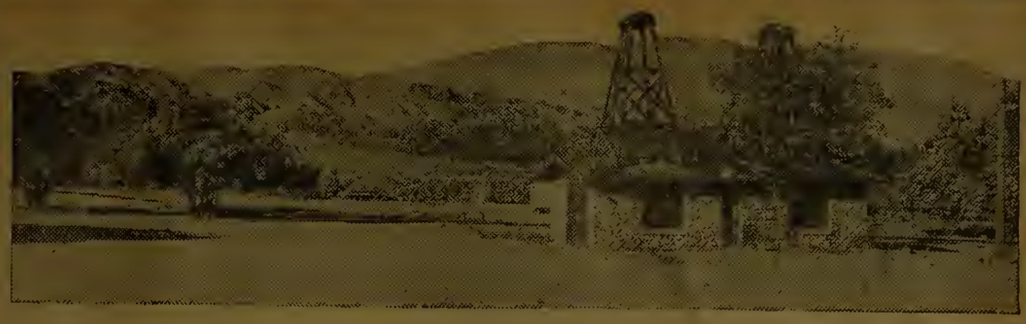
**Would Not Miss a Single Copy**—"Please extend my subscription three years. I do not want to miss a single issue of ORCHARD and FARM."—[illegible], Yuba City, Calif.

# World's Largest Lemon Grove Irrigated With Layne & Bowler Water

*—C. C. Teague's Choice*

The President of the California Fruit Growers' Exchange and the California Walnut Growers' Association —C. C. Teague—several years ago gave preference to Layne & Bowler Pumps. The world-famous Teague & McKevitt lemon grove, illustrated above, is the largest single grove of its kind known and is irrigated with two Layne & Bowler Pumps. The equally well-known Limoneira Grove (of which company Mr. Teague is also President) is also irrigated by Layne & Bowler water.

Install your new pump early in the season. Place your order early, before the rush season begins. We can now make immediate deliveries. *Request Illustrated Folder No. 27.*

LAYNE & BOWLER CORPORATION
900 SANTA FE AVE. . . . . LOS ANGELES, CALIF.

This Type Meter Is Made in ½, 1, 2, 4, 8, Second Foot Sizes, 25 to 800 Miners Inches.

The Reliance Meter has been used under most trying circumstances for the past five years, and meets with the full approval of the best irrigation engineers in the West.

**Randall Control & Hydrometric Corporation**
523 Central Bldg., Los Angeles, Cal.

# Vanish Headaches

**WHY SUFFER PAIN?**
**IT IS NOT NECESSARY,**
**Says Dr. W. B. Thompson.**

By his system—ZONE THERAPY—for stopping pain by nerve pressure, he teaches you how to banish insomnia, headache, lumbago, goitre, eye-trouble, asthma, stomach and bowel disorders, rheumatism and the many ills of the human body.

Without the use of DRUGS, MEDICINES or ELECTRICAL APPLIANCES, he, in a simple manner, readily grasped by even a child, teaches you how to FREE yourself from PAIN.

This system, which is a permanent lifetime investment, is sold at a ridiculously low price, under the iron-clad agreement that if, at any time, now or ten years hence, you are dissatisfied, your money will be cheerfully refunded.

It will COST YOU NOTHING to get more details of this wonderful system, so write today. You owe it to yourself to do this.

Address ZONE THERAPY CO.,
Dept. S, Los Angeles, Calif.

**BEES PAY**

Bee-keepers can obtain from the Apiary Department of the Diamond Match Co. the finest quality of Bee-Keepers' Supplies at fair prices.

The Apiary Department, which is in charge of experienced Bee-Keepers, is one of the largest of its kind in the United States, and maintains a constant excellence of product and unsurpassed service.

Write for catalogue and if a beginner for Cottage Bee-Keeping, which will be promptly mailed free.

**THE DIAMOND MATCH CO.**
**APIARY DEPARTMENT**
**CHICO, CALIFORNIA, U. S. A.**

# FARMERS' CLASSIFIED MARKET PLACE

Classified Ads Continued From Page 39

## POULTRY

### BABY CHICKS

WHITE AND BROWN LEGHORNS, guaranteed strong and vigorous, and bred for large egg production. Full count and safe arrival guaranteed.
Anderson's Hatchery, Successor to James D. Yatee, R. 1, Box 24, Modesto, Cal.

### BABY CHICKS

25 to 5000
PARCEL POST or EXPRESS
FULL COUNT SAFE DELIVERY
GUARANTEED Selected, heavy, laying HOGANIZED MacFarlane, Tom Barron, WHITE LEGHORNS, Anconas, Barred Rocks, Rhode Islands, Minorcas, Buff, Brown Leghorns. ORDER EARLY. Write for prices. Doke Hatchery, Established 1908. 625 So. Spring St., Los Angeles, Cal.

S. C. WHITE LEGHORN baby chicks from heaviest laying (Hoganized) stock. Safe delivery; live, vigorous chicks guaranteed. No money in advance; pay on delivery. Price for May and June, $5.00 per 25, $9.00 per 50, $14.00 per 100. Special prices 500 and 1000 lots. Largest electric hatchery in the world. Established 1898.
MUST HATCH INCUBATOR CO., 432 Seventh St., Petaluna, Calif.

PENN'S QUALITY BARRED PLYMOUTH ROCKS and Ferris highest egg strain White Leghorn guaranteed hatching eggs and chix. Barred Plymouth Rock breeding cockerels that will please you at $5.00 and $8.00 each. A Western bred strain that has won in all competition. GOLDEN RULE POULTRY FARM, Porterville, Cal.

MOUNTAIN VIEW ELECTRIC HATCHERY —Pure-blooded and standard-bred S. C. White Leghorns. Amos Strain. Fine cockerels now for sale. Winners at State Fair, 1919-1920. Booking orders now for baby chicks for February, March, April, May and June. L. J. Amos, Mountain View, Calif.

## RABBITS AND PIGEONS

ANNOUNCEMENT is made that I have purchased the entire stock of Champagne d'Argents from Mr. E. Kaufman, Oakland, Calif., also the "Dreadnaught Strain Champagne d'Argente" of Mr. R. S. Craig, San Pablo, Calif. Those two purchases comprise about 100 rabbits, many of which won first and special prizes in the leading Western shows. With this new blood added to my own prize-winning Champagnes I intend building up a strain that will be unequaled in this great variety, of which there are none better for meat and fur. Dolan's Rabbit Farm, 1800-36 E. 25th St., Oakland, Calif.

MR. FARMER, rabbits are always profitable. Use good judgment selecting your breeding stock. We carry at all times 700 high grade, large, healthy rabbits, pedigreed or utility, to choose from. Moderate prices, shipped anywhere, guaranteed satisfaction and delivery. Rabbit Farm, 3723 Moneta Ave., Los Angeles, Calif.

REGISTERED Himalayane, reasonable. Valuable imitaion ermine fur rabbits. Satisfaction guaranteed. Black and White Fur Rabbitry. J. D. Hall, 1375 E. 49th St., Los Angeles.

IF INTERESTED IN RABBITS write to Mrs. C. A. Richey, R. 7, Box 854, Los Angeles, the best-known breeder in America for nine years.

THOROUGHBRED Himalayans, $2.00 and $4.00 pair. John H. Labohn, Orange, Cal. R. F. D. No. 1, Box 41A.

ORDER HAVANAS—The brown velvet rabbits for June delivery. Perrywinkle Rabbitry, 720 Kingsley Dr., Los Angeles.

PEDIGREED Flemish Gianta; also utility stock; no fancy prices. Mrs. T. Beeching, 1578 W. 46th St., Los Angeles, Cal.

## DUCKS

CALDWELL'S White Muscovy Ducks win, weight, lay and pay. The largest duck of the duck family. The duck without the quack. Eggs. Week-old ducklings, hen hatched. Free circular. Caldwell Duck Ranch, Lock Box 274, Loe Angeles.

PURE BRED POLANDS shipped on approval. Contracts sent on request. Sires, Iowa Pilot-Smooth Clansman. We breed nothing but the best. California Swine Corporation, Escalon, Cal.

FOR SALE—Pekin duck hatching eggs, $2 per setting. Walter Schlotthauer, Exeter, Calif.

## POULTRY REMEDIES

ARROW CARBOLINEUM kills chicken mites in poultry houses. Preserves wood against rot and premature decay. CARBOLINEUM WOOD PRESERVING CO., 222 E. Water St., Portland, Oregon. Germain Seed and Plant Co., Los Angeles, Cal.

## TURKEYS AND GEESE

GIANT BRONZE TURKEYS
Large turkeys can be raised at practically the same cost as small ones. It is in the strain. One of my tome will give you five more pounds of meat to market in all of his get the first year, beides vitality and beauty.
GOLD NUGGET STRAIN
Again win at California's two greatest shows, Gold Special Sweepstakes for best turkeys at California State Fair, 1920, against sixty-six of the State's best turkeys; also every first, second and third prize and and Gold Special Sweepstakes at Los Angeles Livestock Show, 1920.
The Gold Nugget Strain have continually proved their superiority by winning Gold Special Sweepstakes at every show exhibited in the last six years, including six State faire and all the largest shows in the West.
AN UNEQUALED RECORD
Tome and eggs for sale; also a few high class exhibition toms to win in any show. Circular after first of year.
J. WILL BLACKMAN
Originator of Gold Nugget Strain,
607 East Third St., Los Angeles, Cal.

HART'S MAMMOTH BRONZE TURKEYS. I have a splendid lot of young April hatched gobblers. These birds are large, heavy boned and well marked, weighing 20 pounds and up. Young toms, $12.50 and $15 each, depending on size and markings. No more hens. Add $2.50 extra for coop, same refunded on receiving coop. Eggs in season. Albert M. Hart, Clements, Cal.

TURKEYS—"Goldbank"-"Copper King V" strain. Selected, giant bronze toms. Sired by son of famous "Copper King V," first prize yearling, N. T. B. Club Show, Madison Square, N. Y., January, 1919. Bred to 20-lb. hens. Egg orders taken. Prices reasonable. Address Bronze King Mountain Farm, P. O. Box 308, Calistoga, Cal.

SEVERAL VARIETIES. Bourbon Red, White Holland, Mammoth Bronze Turkeys. White Guineas. White Muscovy (quackless) Ducks. Drake, $4.00; Houdan eggs, $2.50 setting. Mrs. B. Hocking, 541 East 33rd, Los Angeles, Cal. Parcel Post 25c.

SERVICE of splendid Bourbon Red Gobbler, 2 years old; first winner Loe Angeles Live Stock Show; send your hens; $2.00 per bird; one service good for one whole clutch of eggs. 541 E. 33rd St., Los Angeles, Cal.

BRONZE turkeys, Embden geese and herding collie dogs. Turkey eggs by setting or thousand; 45,000-acre range. John G. Mee, San Miguel, Cal.

BOURBON Red Turkeys, Buff Orpingtons, Buff Ducks. The Ferris Ranch, Grand Ave., Pomona, Calif.

## BIRDS, DOGS, PETS

WANTED to buy, canaries, parrots, doves, dogs, cats, guinea pigs, animals all kinds. Buker's Bird Store, 1176 Market St., San Francisco.

## GUINEA PIGS, MICE, RATS, ETC.

GUINEA PIGS for sale. Blacks, whites, rede and creams; also broken colors. Write me your wants. J. E. Love, 104 South Rose Ave., Lamandn Park, Cal.

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EVERYTHING SECOND-HAND — All kinds stoves, plumbing supplies, pipe, farm tools a specialty. Noah's Ark, 609 East 1st St., Los Angeles. Phone 19750.

## HELP WANTED

BE A PHOTOPLAY WRITER. How to write, what to write, how to sell. Complete instructions free on request. STUDIO SCENARIO SERVICE, Post Office Box 1542, Los Angeles, Cal.

DETECTIVES EARN BIG MONEY. Excellent opportunity. Experience unnecessary. Particulars free. Write, American Detective System, 1968 Broadway, N. Y.

WOMEN AND GIRLS in small towns and rural districts to do writing at home. No outfit to buy, no experience necessary. Wharton, Box H, Folsom City, California.

MEN Wanted for Detective Work. Experience unnecessary. Write J. Ganor, former U. S. Gov't Detective, 143 St. Louis.

## WANTED—AGENTS, SALESMEN

DISTRIBUTORS to appoint agents and sell Powerene at wholesale. Agents make $30 a day. Special terms to distributors. Equals gasoline at 5c. The equivalent of 20 gallons, express prepaid, $1. P. Barnes, R424, Santa Rosa, Cal.

AGENTS—Mason sold 18 sprayers and autowashers one Saturday. Profit $54.00. Square deal. Steady work. RUSLER COMPANY, Johnstown, Ohio.

FARMER commission agents wanted to sell agricultural implements. Big line, liberal profits. Address "Implements," Box 1291, Los Angeles.

## BUSINESS OPPORTUNITIES

SELL YOUR GOODS by mail. Expand your business nationally. Use fresh names, cash mail order buyers, 90 per cent property owners, rural, small town folk, farmers. Circular 41 free. Box 26, Corona, N. Y.

## KODAKS, CAMERAS, SUPPLIES

**"We Pay the Postage"**
Don't Take Chances.
Have your Kodak finishing done by experts.
Mail your negatives to
**Winstead Photo Finishing Co., Box 116, Los Angeles**
"We put the snap in snapshots."
"Write for our new price list.
Let us enlarge your favorite negative.
quin, 268 Market St., San Francisco, Cal.

## ENGINEERING

GET maximum income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, Cal.

## CHIROPRACTIC COLLEGES

FREE CHIROPRACTIC treatments. 931 S Hill St., Los Angeles. Dr. Cale, president.

## TOBACCO FOR SALE

TAYLOR'S Tampa Havana 5" Cigars, $7.50 for 100, postpaid. J. R. Taylor, Box 661, Tampa, Fla.

## BOOKS BOUGHT AND SOLD

BOOKS BOUGHT—Choice and rare books a specialty. Dawson's Book Shop, 518 S Hill st., Los Angeles. Phone 63250.

## BOOKS—HEALTH and MEDICAL

BOOKS—All kinds. Lists. Hilgene's, O-2441 Post St., San Francisco.

# Sunflowers

## The Downward Trend

A lady just dropped in to call
On sister. Ever since—
One's been dropping stitches,
And the other dropping hints.

Their voices drop to whispers,
As they drop some gossip, too—
And then they drop the subject,
Just to take up something new.

So I drop a line to tell you,
If a rumor you would stop,
Before you raise a question—
Better let the matter drop!
—Justin Nutt

## Astonishing Ads

FOR SALE—China nestegga for Pekin ducks This is your cue—Sing Lee.

WANTED—Someone to take six dozen pairs of cotton gloves off my hands.—I Sellem, General Merchant.

TO EXCHANGE—Dry goods for wet goods. A. Buzefiter, the People's Store.

LOST—A case that might have had considerable money in it.—Skinnem & Cleanem, Lawyers.

## English and Eggs

"Do you say that your hens 'sit' or 'set'?" asked the precise pedagog of the busy housewife.

"It never matters to me what I say," was the quick reply. "What concerns me is to learn, when I hear the hen cackling, whether she is laying or lying."

## A Sure Method

"Fine twins ye have there, Mrs. Murphy; but, tell me, how do ye iver know thim apart?"

"Faith, an' that's aisy, Mrs. O'Flaherty," said Mrs. Murphy. "Oi put me finger in Dennis' mouth and if he bites it's Mike."

## Explained

Father—Robert, why is it that the little Smith boy, who is so much younger than you, is ahead of you in school?

Robert—I dunno; I s'pose his folks is smarter than mine.

## Ready for Emergency

"Danny was looking at a picture of the prophet Elijah ascending to heaven in a chariot of fire," relates the Mulvane News. "When he saw the halo about Elijah's head he cried, 'Oh, look, mama, he's carrying an extra tire'."

## Master Artist

The Sammy—"Over in Amurica we gotta lilac bush fifty feet high."

The Tommy—"I wish I could lila that."

IF CONDITIONS DON'T IMPROVE

I've hocked my hat and overcoat,
Borrowed all I can;
Used my credit and my note
With every willing man;
Charged meals at the restaurant
And overdraws the bank
Told my friends about my want,
And touched them, I am frank
In stating I have nothing more
That I can put in soak,
And if conditions don't improve
I fear I shall go broke!
—Justin Nutt

# Dr. J. A. Roberts Laboratories

LARGEST BREEDERS AND DISTRIBUTORS OF GUINEA PIGS FOR LABORATORY PURPOSES

LABORATORIES AT HOLLYWOOD, CAL.

ADDRESS ALL WESTERN CORESPONDENCE TO 6634 SUNSET BLVD. HOLLYWOOD, CAL.

**There are more who have missed opportunities than there are who have lacked opportunities.**

MEMBERS
NATIONAL BREEDERS AND FANCIERS ASSOCIATION
MILWAUKEE PET STOCK ASSOCIATION
UNITED CAVY BREEDERS ASSOCIATION

**You can make $2000 a year raising cavies for us.**

# BIG PROFITS If You Will Raise Guinea Pigs

In order to supply our ever-increasing demand for cavies (guinea pigs) for use in hospitals, laboratories, etc., we have opened a California branch. Few industries offer such profits at such investment of money and time. Foundation stock can be purchased for only a few dollars and cost of raising is only about 5 cents per head. We agree in writing to purchase all the cavies you raise from stock purchased from us, or their descendants, and will pay $1.20 a pair for animals 2 months old or older delivered. Even a few pens should pay you well. Send for booklet about breeding, care and money-making opportunities raising cavies.

A hundred breeding female cavies, and they have five litters a year, which is five hundred litters, and the Government figures three young to a litter, which is 1500 young, and figure that the first three litters from your original 100 breeders will have young during the same year, that will be 300 litters, and at three to a litter, which amounts to 900 young. Add the above 1500 young to 900, makes the total of young from your original cavies 2400 for the year, and at our contract price of $1.20 per pair, for you can rest assured that about half will be males and half females, and your profits for the end of the year will be $1,440.00 from your small investment, and you will still have your stock that you had to begin with

**To Sell to Us—1,250,000 Needed Yearly**

by laboratories and other institutions every year in all parts of the country. Many of these big orders, representing over a million and a half dollars expenditure each year, are waiting for supplies. Waiting for people to wake up to their opportunities and raise sufficient stock to meet their requirements. One institution alone requires on an average of 2000 guinea pigs each week.

We have more orders than we can possibly fill, so we will furnish you breeding stock at small cost.

Guinea pigs are very prolific and at six weeks of age are ready for mating. They thrive in any climate and can be successfully raised in congested neighborhoods without annoyance or disagreeable odors, even when kept in large numbers.

The Government promotes the raising of guinea pigs to protect the people from pneumonia, typhoid fever, etc.

DO YOU KNOW WHAT CAVIES DID TO WIN THE WAR?

Every soldier who went overseas, as well as many of the boys who remained in camps in this country, received from 4 to 27 injections of serum made from guinea pigs to combat the many diseases with which they came in contact.

You will be doing a good turn for humanity in raising cavies, for we never can tell when some of us will contract pneumonia and nothing will counteract same but serum made from cavies.

You have seen our ads for the last 14 years in all the popular papers. Those who are the most successful in life are the ones who grasp the opportunity when it presents itself.

This Has Nothing to Do With Vivisection. 10 Guinea Pigs should earn $100 a year. 500 Guinea Pigs should earn $5000 a year.

**Enclose this adv. and 25c for booklet on "How You Can Make $2000 a Year."**

**Dr. J. A. ROBERTS LABORATORIES,** Established 14 Years **6634 Sunset Blvd., Hollywood, Cal.**

# DIAMOND "H" GASOLINE DRAG SAW

**Designed for CUTTING LOGS INTO CORDWOOD, SHINGLE BOLTS, TIE LENGTHS, FUEL FOR LOGGING ENGINES, CLEARING LAND, ETC.**

SELLS AT THE RIGHT PRICE

OVER 10,000 OF THIS MODEL IN USE

**Can Be Furnished With Tree Felling Attachment or Demountable Transport.**

**WE CAN ALSO FURNISH A FOUR-CYCLE ENGINE OUTFIT**

## "Everything for Working of Wood"

**Harron, Rickard & McCone**

San Francisco Los Angeles California

# THE BIGGEST LITTLE THING

## you can do for baby chicks

**Sperry Baby Chick Mash**

This is a new Sperry Product to meet a growing demand—a product that is up to Sperry Standards of Quality. We are packing this feed in 50-lb. and 100-lb. yellow-striped bags. Your dealer can supply you.

—is to give them clean, prime feed. The poultryman who recognizes the importance of this rule is sure to save a big percentage of his hatch. The poultryman who ignores it is bound to lose.

Prime grains mean *clean* grains, free from smut, mould and other damage. Cleanliness is of prime importance in feeding baby chicks. In making SPERRY BABY CHICK FEED we keep this constantly in mind. During its entire process of manufacture the same absolute cleanliness is observed as in manufacturing Sperry Red Package Cereals for your table.

The formula for SPERRY BABY CHICK FEED is based on this full-grown idea: nothing is good enough for a baby chick that, under other conditions, would not be good enough for a human baby. These little bits of chick life require a feed that is granulated and proportioned for their delicate digestive organs. Their fast-growing bodies demand a uniform, balanced ration that supplies *all* the food values Nature intended a growing chick to have.

And SPERRY BABY CHICK FEED gives it to them. That's why they thrive on it. In the first few weeks of their lives this clean, prime feed comes to these chicks and gives them a firm foundation; a foundation on which to build their future egg-production—and your very profits. In short—it gives them the *right start*. And that means everything—to the chicks and to you!

Seasoned poultrymen will tell you that the slight difference in cost between poor feed and SPERRY BABY CHICK FEED means nothing — especially when you appreciate that the saving of a very few chicks more than makes up for it. And—here's another typical Sperry economy:

New improved machinery makes absolutely certain the *proper granulation* of SPERRY BABY CHICK FEED. This avoids the waste in actual feeding that is bound to happen with feed too finely ground.

Our booklet, "Makes Hens Happy," devotes quite a bit of space to this all-important subject of baby chicks. Thousands of successful poultrymen have found it a big little help. We'll send it gladly on request. Don't bother to write a letter—simply clip the coupon and mail today!

STOCK & POULTRY FEED DEPARTMENT **SPERRY FLOUR CO.** STOCKTON CALIFORNIA

# SPERRY Baby Chick Feed

STOCK AND POULTRY FEED DEPT.,
SPERRY FLOUR CO.,
204 Weber Avenue, Stockton, California
Please send me, without obligation, your booklet, "MAKES HENS HAPPY."
Name .....
Address .....

SPERRY PRODUCTS IN EVERY HOME SPERRY FLOUR

**"There's a Sperry Feed for every stock and poultry need. And remember—every sack is guaranteed."**

April, 1921 10c the Copy

# ORCHARD and FARM

ESTABLISHED 1888

CALIFORNIA STATE LIBRARY

*You Will Want to Read in This Number*

Facts and Fallacies in Alfalfa Growing.

What You Should Know About Writing and Handling Checks

Is the Horse or the Tractor the Farmers' Best Bet?

What to Do in Garden and Orchard.

And a Hundred Practical Ideas and Bright Features to Make Short Hours and Long Purses.

Copyright, 1921, by Country Life Publishing Company

Offices: Los Angeles and San Francisco

*Largest Farm Journal Circulation in California*

# We Sell More Army and Work Shoes Than Any House on the Coast!

—The great growth of our shoe business was possible only through our policies: Buying only shoes which we know are good, from reliable manufacturers—selling them on an extremely close margin of profit—giving our customers the benefit of every special purchase we make—guaranteeing and standing behind every pair of shoes we sell—these are the reasons for our phenomenal growth! **You run no risk when you buy shoes from us—if they go wrong we want them back!**

## Army and Navy Shoes Down to $5

—THE LOWEST THEY HAVE BEEN SINCE THE WAR! Have been selling as high as $8.95. No more serviceable shoe. Army shoes for work or sports wear. Navy shoes for business, semi-dress or work. The army shoes are on the broad Munson last, soft toe, low heel—can't hurt the feet. The navy shoes are made on a neat cadet last as shown at left; blucher style, good looking. Both shoes are all leather and are guaranteed for wear. All men's sizes, 6 to 11. State size.

—No. 0182—Army Shoes, like cut at right, state size, $5.00.
—No. 0184—Navy Shoes, like cut at left, state size, $5.00.

## Boys' Army Shoes—$3.25 to $3.75

—Made just like our men's army shoes. Munson army last, soft toe. An ideal shoe for school or work. If they go wrong, send them back. Prices:

No. 0186, sizes 2½ to 6, $3.75—No. 0188, sizes 1 to 2, $3.50—No. 0190, sizes 9 to 13½, $3.25.

## GUARANTEE:

—We guarantee every pair of shoes we sell. If they go wrong send them back for an adjustment. We are not satisfied till you are satisfied.

## Men's Work Shoes

$3.50

Men's work shoes on the Army Munson last. All leather. Comfort and wearing qualities. Our biggest seller. Sizes 6 to 11. State size.

No. 0192, Price $3.50

## MEN'S HEAVY WORK SHOES

—No. 0194—Men's heavy work shoes. Every pair guaranteed! Full size and roomy; can't hurt the feet; sizes 6 to 11. A shoe we have sold for years. Always gives satisfaction. Extra special—$3.00.

$3

Comfort, Style and Good Looks

$1.75

Girls' Patent Leather Mary Janes

Like Cut—Prices:

No. 0194—Sizes 5 to 8, $1.75.

No. 0196—Sizes 8½ to 11½, $2.00.

No. 0198—Sizes 12 to 2, $2.25.

$5

—No. 0200—Women's Black Vici Comfort Shoes, sizes 2½ to 8.

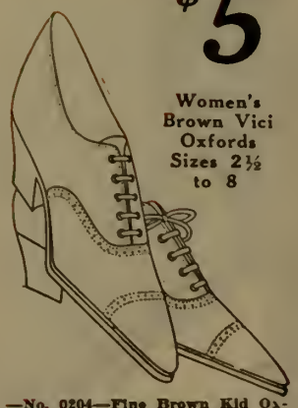
$4.00

No. 0202—Same in Oxfords,

$3.50

$5

Women's Brown Vici Oxfords Sizes 2½ to 8



—No. 0204—Fine Brown Kid Oxfords. A quality that has been selling at $8 to $10. Sizes 2½ to 8. State size. Price $5.00.

For Men and Women

## Moccasin Boots

$9.95 to $12.95

—MOCCASIN BOOTS for outing and general wear. All leather, high quality, good fitting. We sell great quantities of these boots. Guaranteed to fit and wear. Men's and women's styles and sizes. Prices:
—No. 0206—Women's sizes, 2½ to 8; 12-in. tops, $9.95; 15-in., $11.45.
—No. 0208—Men's sizes—6 to 11. 12-in. tops, $10.95; 15-in., $12.95.

## Men's Leather PUTTEES $4.95

—"WARRIOR" PUTTEES FOR MEN—Our biggest seller is puttees. Sold recently at $9. Made like small cut at right, bottom. Genuine leather, mahogany color, good fitting. All men's sizes. Our own brand. State size.

—No. 0210—MEN'S "WARRIOR" PUTTEES—$4.95.

## WE SELL PRACTICALLY EVERYTHING

—We sell nearly everything to eat, wear or use. And all our prices are just as reasonable as the shoe prices quoted here. Our new spring catalog quotes hundreds of articles.

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P. O.....
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## Army & Navy Department Store

530-36 South Main Street, Dept. 29, Los Angeles, Cal.

**OUR EDITORIAL POLICY**

Orchard and Farm is a magazine of, by and for agricultural people. We believe that to the tiller of the soil is due the best that life affords. We believe that he is the bulwark of the Nation. We honor him as the basic producer. His problems are our problems, his triumphs, our triumphs; his joys and sorrows, ours. To record his achievements and expose the duplicity of his enemies; to fight for and with him; to give him genuine help and practical information; to assist, entertain and inspire every member of his happy household—that is the policy of Orchard and Farm.

# ORCHARD and FARM

ESTABLISHED 1888

Published Monthly by Country Life Publishing Company

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"THE SILENT PARTNER OF THE SUCCESSFUL FARMER"

Entered as second class matter at the Post Office of Los Angeles, California, under act of Congress of March 3rd, 1879.

**SEASONABLE SUGGESTIONS**

April is the month of Youth, when sometimes folly outweighs truth, but a happy month for all, with many duties great and small. Do not wait to irrigate; better early than too late. Keep the windmill gear well oiled. Don't feed silage that has spoiled. Paint before hot weather comes. Show the woodpile to the bums. Time to spray for garden pests, but don't try what each friend suggests. Fix the screens and fight the bugs. Tighten up the tractor lugs. If meals are late it is no crime. Remember, it's house-cleaning time! — Jason Wells.

## Pithy Paragraphs

"What fools these mortals be!"

Puck was right! April first is one day that all the world can celebrate.

For each one of us is a fool in the eyes of some one else. The honors are always even, yet the game will never end.

"Fools rush in where angels fear to tread." (And we might add that many fools are dead.) "There's no fool like an old fool," we are told. (But not to Age are all the gold bricks sold!)

Destroy plant lice early. Nearly all plants are attacked by members of the aphis family. Like the water in a well which is constantly lowered by pumping, so the sap in the plant is depleted by these sucking insect enemies. Nicotine sulphate is deadly to plant lice. "Blackleaf-40" is the form commonly used. Apply it according to directions. —G. P. W.

Arguing is the great American pastime. Two capable and experienced arguers can discuss any subject from the Eighteenth Amendment to the Aurora Borealis and each prove the other to be a third-degree prevaricator. Words will "prove" almost any point. Some arguments remind us of the rosebud and the promissory note. They are alike because both are matured by falling dew. Doesn't this prove the point?

Jas. C. Mullin

Editor.

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"THE pessimist and the optimist are the worst enemies of agriculture today," asserts a student of rural economics "We should seek the happy medium," he adds.

The pessimist regards the situation with cold and fishy eye, and wails, "It's hopeless!" The optimist says "There is a solution"—but expects the other fellow to find it.

There is a "happy medium." He smiles while he rolls up his sleeves, then removes his hat, grits his teeth and takes a running jump. What shall we name him—the "pep-ti-mist?"

The "pep-ti-mist" today is doggedly carrying on. His slogan is "Business as usual." He is a running fighter but he never runs backward. The hundreds of advertisers whose announcements appear in this big issue of ORCHARD and FARM are "pep-ti-mists." Patronize them!

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### APOLOGIES—REGRETS

Owing to the failure to arrive of a shipment of newsprint paper, it was necessary to omit this month a number of interesting articles, including one by our Mr. Barnhill. Dr. Farmer's milk goat department also "fell by the wayside." And there were others—but that makes just so many more valuable features for the May number, which we can promise will be one of the "best yet."

### HELPFUL SUGGESTIONS CONTEST

Only a short time remains in which to submit your entries in the Helpful Suggestions Contest. More than $150 in cash prizes. Write the Editor about your money-saving plan, new discovery, or home-made device for simplifying the work.

### THE "GREEN" HAND

*The Boss—"Hey! Drop that carpet beater! What are you doing to that poor bird?"*

*His Nibs—"W-w-why, the missus told me to dust the setting hens."*

While it is natural for all of us to interpret ideas in terms of our own experience, it doesn't pay to be too literal. ORCHARD and FARM readers, however, have learned to depend upon information appearing in this magazine. Reader-confidence is one reason for ORCHARD and FARM'S growing circulation, the largest in California. "If you read it in ORCHARD and FARM it is reliable."

### A Creed in Twelve Chapters

(4) **Knowledge.**—The mastery of the way to do things is the accomplishment that counts for future work. Facts are teachers. Experiences are lessons. Friends are guides. Work is a master. Love is an interpreter. Teaching itself is a method of learning. Joy carries a divining rod and discovers fountains. Sorrow is an astronomer and shows us the stars.—Henry Van Dyke.

# Cletrac
## TANK-TYPE TRACTOR

# *This Year You Want Results*

Half-way methods won't "get by" this year. You need results and profit—*more* work at *cheaper* costs.

And here's the very reason that now more than ever before you need Cletrac on your farm.

Cletrac has proved itself on every Pacific Coast farming job. Every orchard man knows its marked success in orchard work. Low-set, smooth-bodied, short-turning—Cletrac works close to the trees, leaving no patches for horses to finish up.

On any draw-bar work—plowing, discing, drilling, harvesting, hauling—no matter what the job and no matter what the soil—even soft sand, tule, volcanic ash or gravel—in good condition or bad, Cletrac works when you need it and finishes on time. This tank-type tractor lays its own endless track and gets a firm grip on any ground.

When it comes to tough jobs—plowing "nigger wool" or up-grade work in the foothills—Cletrac has the power and low center of gravity to perform in many cases where even horses would find it hard to satisfy.

Add to this Cletrac's all-the-year, all-purpose ability on draw-bar and belt work and you'll know why every Cletrac owner will tell you that Cletrac has more than made good for him and will for you.

You will find real value in our booklet—"Selecting Your Tractor." Write for it today and see your local dealer.

*Hard this way, but—*

*Easy on a track The Cletrac Way*

### *Specifications*

*Horsepower:* 12 at draw-bar, 20 at belt pulley.
*Length:* 96 inches.
*Width:* 50 inches.
*Height:* 52 inches.
*Weight,* 3465 pounds.
*Turning Circle:* 12 feet.
*Traction Surface:* About 800 square inches.
*Center to Center of Tracks:* 38 inches.
*Belt Pulley:* Dia. 8 inches; face, 6 inches.

## THE CLEVELAND TRACTOR CO.

*"Largest Producers of Tank-Type Tractors in the World"*

19081 EUCLID AVE., CLEVELAND

PACIFIC COAST SALES OFFICES

LOS ANGELES, CAL. SAN FRANCISCO, CAL. SPOKANE, WASH.

ORCHARD and FARM

VOL. XXXIII. • APRIL, 1921 NO. 4

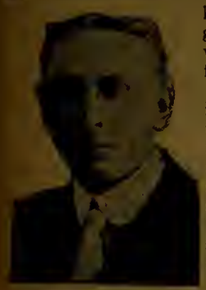
# Weldon's Timely Orchard Tips—What, Why and How This Month

By George P. Weldon

CONTRIBUTING HORTICULTURAL EDITOR OF ORCHARD AND FARM

Pomologist, Chaffey Junior College of Agriculture

ALONG with tractor development have come a number of new and useful implements. In certain sections, where land is free from rocks and easily worked, a very efficient cultivator known as the weed knife is finding general favor with power farmers.



George P. Weldon

The weed knife is nothing more than a low, stout frame to which are attached a series of heavy steel cutting blades, set at such an angle as slightly to overlap in their cutting when drawn through the soil, resulting in the entire elimination of all weeds in their path.

Sandy soil, if cultivated with this device three or four times during the season, can be kept free from weeds and in prime physical condition.

With a twelve-foot weed knife and a good tractor the orchardist is enabled to care for a large tract more economically and far more quickly than with a team and the old type of cultivator.

(See cut of weed-knife, page 41)

## Bury Weeds Before They Take Moisture From Soil

THE orchard may fail to grow or produce well because of a lack of moisture. Water resources in many places are not yet sufficient to meet all the needs of the fruit grower, and conservation is still a vital problem.

All plants during growth require moisture which is taken from the soil by the roots. Weeds growing in the orchard compete with the tree roots for moisture and frequently rob the trees of a much-needed supply.

In California, where weeds grow luxuriantly during the winter season, the loss of moisture in the early spring is tremendous, and during seasons of light rainfall the orchard may suffer severely as a result of this loss.

The greatest damage will take place where spring plowing is delayed until well toward the end of, if not after, the rainy season.

The greatest conservation results from the earliest possible spring plowing. The grower whose supply of water is inadequate cannot afford to allow weeds to rob trees, but should plow them under before the new year has well begun.

Was the reader "made good" this year? If not, now is the time to make a new resolution.

## Successful Intercrops Important Factor

THE necessity for realizing upon the productivity of the soil before the orchard trees come into bearing is felt by the majority of fruit growers, and the choice of a crop to grow between the trees may be somewhat difficult.

There are a number of crops that can be grown successfully in the orchard, but nothing should be considered if there is a scarcity of water, so that trees would suffer while the other crops were competing for the limited supply.

If water in sufficient quantities is available for irrigation then the grower may proceed with the assurance that little if any damage will result to the trees.

Leguminous crops, of course, are always to be preferred, and among the legumes the various varieties of beans are good.

Peas also may be grown to advantage, and in some places peanuts are a splendid intercrop.

Of the non-legumes, great success has been attained at times with potatoes, tomatoes and cantaloupes. A San Joaquin Valley orchardist is reported to have realized attractive revenue from an intercrop of cotton.

The growing of any of the crops which require cultivation may be an advantage because of the extra work done in tilling the soil. At least no serious harm could result, and many a man is enabled by intercropping to make "both ends meet," when without this aid he would find it necessary to secure employment elsewhere until the orchard income was sufficient to justify his staying at home.

## Summer Pruning in May Often Advisable

THE right start in life means as much to the tree as to a member of the human family.

During the first summer season in the orchard the young tree passes through a period when its future strength and usefulness may be "made or marred."

At this important time the selection and development of the most favorable branches will result in the development of a strong tree, capable of producing and maturing maximum crops of fruit.

The month of May is to be preferred to the later months for summer pruning. The process involves the pinching-back from the tips of all branches not well placed or otherwise undesirable in order to form the framework. This pinching-back checks their growth and encourages the development of the favored branches which are left.

The term "pinching back" is used because the work may be done with the thumb and forefinger, the pruning shears being unnecessary. Entire branches never should be removed, as the resultant loss of foliage is too great. By simple removal of the tip, the terminal growth at least will be temporarily checked, and the foliage toward the base of twigs is saved for its shade and plant feeding value.

Heavy summer pruning, such as the removal of large branches from older trees, results in a severe shock and is not usually desirable, but the first year work as briefly outlined is an exceedingly practical and important phase of orchard management.

## Silvery Leaf of Peaches—Cause and Control

FEW peach growers have failed to observe a silvery appearance of leaves here and there in the orchard.

Last season this condition became general throughout the peach-growing sections of Southern California, and orchards were conspicuous because of this peculiar condition about the time when later varieties, such as Phillips Cling, were being harvested.

The silvery sheen is due to injury from a tiny mite which feeds upon the surface, causing irritation; apparently the result is an interference with the development of the chlorophyll (green coloring matter) in the leaves.

This mite is so small that it cannot be seen with the unaided eye. A powerful hand lens will reveal its presence and it will be seen as a tiny, wedge-shaped object, little bigger than a grain of dust on the leaf.

While very small, the pest is great in numbers, and the surface of a leaf may have thousands of them feeding upon it. This pest, which might well be called the "silver mite of the peach," bears the scientific name, *Phyllocoptes cornutus.*

The writer made some careful life history studies of this mite last fall and winter and finds that it remains on peach trees throughout the winter months, but so well hidden under the bud scales of the new wood that its presence cannot be detected until the buds are dissected and examined with a hand lens or microscope.

This wintering habit suggests the probability of complete control by means of a lime-sulphur spray as the buds are swelling in the spring. At this time the mites would be issuing from their winter quarters and the spray would kill by contact.

As most of the commercial peach orchards are treated annually with lime-sulphur it is very probable that the pest will not become abundant enough early in the season to do any damage, except in cases where the spraying has been neglected.

Since the attacked leaf becomes abnormal in color, indicating a reduction in the chlorophyll, without which plant food elaboration is impossible, the damage, if it takes place early in the season, might be somewhat serious. The late season damage such as that experienced last year is probably inconsequential.

There is a similar mite that works on the leaves of the pear, causing a rusty appearance of the foliage, and still another was found last season on the leaves of the grape, where injury observed was very suggestive of that of the pear and peach.

## Spray to Prevent Wormy Apples and Pears

WHAT is worse than a worm in an apple? "Half a worm," replies the person who has had the experience of biting into something more than apple while eating this ordinarily delicious fruit.

The Apple Standardization Law, which makes the sale of wormy apples a misdemeanor, is not concerned about such uncomfortable experiences, but it is vitally concerned in the protection of the industry against unsatisfactory market conditions as a result of the sale of fruit that has been damaged by the codling moth pest.

Control of the apple worm is not difficult under ordinary conditions. The following points, if carefully borne in mind when the spraying season arrives, will aid in successful control:

1. Spray with arsenate of lead, 10 pounds paste form, or 5 pounds powdered form, to 200 gallons of water, preferably when the blossoms are 90 per cent fallen, and never more than one week after blossoms have dropped.
2. Make a second application of the same material, two to three weeks after the first, and a third two weeks after the second.
3. If little worms are seen to be entering later, other applications may be necessary, the number depending upon previous infestation and the numbers of the pest that occur in the orchard.
4. Spraying must be thorough. The first spray, applied when the blossoms are off, is designed to fill the calyx cups. Care on the part of the sprayer is essential in order that few calyces will be missed.

Pear growers as well as apple growers are concerned about codling moth, as it attacks both fruits with equal alacrity. Since the pear calyx lobes do not close quickly, if at all, the first spray may be delayed until a little later than the calyx spray for the apple.

In cases of uneven blooming of either fruit, it may be necessary to make two or even three calyx applications.

Practically every apple and pear grower is troubled with this pest, and spraying must not be neglected or losses from worms in fruit will be heavy.

Recently suggestions have been sent to Bartlett pear growers by the State Department of Agriculture regarding the codling moth control work. The following quotation from one of these letters is of special interest:

"The rejection of California pears in Eastern markets last year on account of spray residue makes it necessary to exercise caution in the carrying out of your spraying program for the coming season in order to avoid a repetition of this occurrence."

The necessity for careful and heavy spraying early in the season, as recommended in this article, is emphasized by the marketing difficulty mentioned in the letter from the State office.

Neglect of the calyx spray and the two which follow quickly for the first brood always means a bad infestation of worms, while careful spraying in the early season normally will control the pest and yet leave little of the objectionable residue upon the fruit.

# Alfalfa Varieties—Facts and Fallacies in California Culture

*Experiments have resulted in elimination of many "freak" alfalfa varieties as possibilities for commercial planting in California. Curiously enough, however, an "alien," introduced only a few years ago, bids fair to supplant all other types in many sections of this State.*

By B. A. Madson

Assistant Professor of Agronomy, University of California

OF THE many types of alfalfa brought into the United States, only a few possess the qualities essential to a permanent place in California agriculture.

The Russian and Siberian varieties, whose chief virtue is cold-resistance, grow too slowly and produce too low a yield to compete successfully even with our common alfalfa. In the colder sections of the State extreme resistance is not necessary, and acclimated strains of common alfalfa have proved sufficiently hardy to survive under such conditions.

Professor Madson

Because of the long growing season and the mild winters which prevail in most of the agricultural sections of the State, long-season, rapid-growing types which will produce heavy yields of hay are desired. These characteristics are found only in the semi-tropical or tropical species.

Of the varieties so far tried, only three have shown sufficient merit to warrant their use in any large portion of the alfalfa growing sections of California. These three varieties are the common or Chilean, the Hairy Peruvian and the Smooth Peruvian, and there appears to be some doubt as to justification for the use of the latter.

### The Chilean Alfalfa

In order to understand and appreciate fully the relative merits of these varieties, it is necessary to know something of their general characters and habits of growth. The common, or Chilean alfalfa as it is called, was brought from Chile by the Spaniards in the early fifties. It is not a native of Chile, but a Mediterranean type introduced into that country at an early date.

It proved so well adapted to California conditions, and gave such consistently excellent results, that for many years it held its own successfully against all competitors. Its general behavior and habits of growth are so well known as to need no discussion here.

### Hairy Peruvian

The Hairy Peruvian alfalfa first was introduced into the United States from Peru in 1899. It was grown experimentally at Chico, California, and other Western points, and while its superiority was noted, the variety was not perpetuated.

The first commercial plantings were made in the Yuma Valley in 1906, and were the progeny of seed introduced in 1903. The variety proved to be extremely valuable for that section, and was multiplied and increased rapidly, practically all the Hairy Peruvian alfalfa grown in California and Arizona at the present time having descended from these original plantings.

The Hairy Peruvian differs from the common alfalfa in a number of ways. It has a longer growing season, beginning growth earlier in the spring and continuing later in the fall. In fact, in Southern California and Arizona, where the winters are very mild, it may continue to make some growth throughout the winter, whereas the common alfalfa always has a dormant period of some length.

The Hairy Peruvian, furthermore, grows more rapidly, and these two characteristics enable it to produce a cutting or two more per season, and a correspondingly larger yield, particularly in sections where the temperature is high and the growing season long.

### Larger Yields

A survey of the results obtained by farmers in different parts of the State brought out the fact that in Southern California and the San Joaquin Valley, the opinion was almost unanimous that the Hairy Peruvian was superior to the common. According to the grower's estimates, the Peruvian yielded from 10 to 30 per cent more than the common. These differences in yield were not obtained by actual weight, but are estimates based on the appearance of the crop or the number of loads of hay obtained. There is no doubt, however, that they are fairly indicative of the performance of the two types.

In the Sacramento Valley, the Hairy Peruvian has been grown only to a limited extent, but it is the opinion of most of the men who have tried it that it is superior to the common. In this section, however, the growing season is shorter, and the number of cuttings obtained from the two varieties about the same, so that the difference in yield would naturally would be less than in the South.

Limited tests conducted at the University Farm at Davis showed that the Hairy Peruvian produced a larger tonnage of green material per acre, but that it lost more in curing, so that the yield of cured hay obtained from the two varieties was about the same.

### Climatic Requirements

It is generally recognized that for best results the Hairy Peruvian requires a warm climate, a good soil and an abundance of water. Ample irrigation particularly is necessary; otherwise the yield deteriorates rapidly, and the stems become hard and woody, greatly reducing the quality of the product. A cool climate, or exposure to ocean winds, appears to have the same effect. In choosing between these varieties, therefore, the locality, the character of the soil, and particularly the supply of irrigation water, should be considered.

The Hairy Peruvian is essentially a warm-climate type and there is no question as to its superiority for the more favorable conditions of the southern part of the State, but in the cooler climate of the North common alfalfa probably will continue to hold its own.

### Feeding Value

While the growers on the whole favor the Peruvian, the feeders are almost equally emphatic in their opinion that the quality of the hay is inferior to common alfalfa for feeding purposes. They assert that it is more "stemmy" and that a larger portion of it is waste. That the hay varies in quality with the condition of growth is unquestionable, but the higher yield will more than offset the difference in feeding value.

### Smooth Peruvian

With regard to the Smooth Peruvian, there is a general impression that it is the result of a natural cross between common and Hairy Peruvian, developed since the introduction of the latter. It is entirely possible that it is such a cross, but if it is hybridization occurred before its introduction, as it was not developed here.

Undoubtedly crosses have occurred but they have never been isolated or developed. The so-called Smooth Peruvian was introduced in 1908 through error rather than design. After the excellence of the Hairy Peruvian had been established, additional seed was received from the same source in Peru, for the purpose of increasing more rapidly the field plantings. When the seed was planted and the plants came up they proved to be entirely different from the variety desired, and to distinguish it from the former variety the new kind was called Smooth Peruvian.

### Appearance and Habits

In appearance and habit of growth it is about midway between the Hairy Peruvian and the common. It grows a little more rapidly and has a longer period of growth than the common alfalfa, and under favorable conditions will give somewhat higher yields. It is, however, in most cases, inferior to the Hairy Peruvian in rapidity of growth and yield, and since it is adapted to the same conditions as this variety, there appears to be little justification for its use. The writer is cognizant of the fact that it has given excellent results in many cases and that it is preferred by many to the hairy type.

The plants of the Smooth Peruvian, however, resemble common alfalfa so closely as to be indistinguishable, and there is reason to believe that some common alfalfa seed, or at least seed badly mixed with common alfalfa, has been sold as Smooth Peruvian, as the latter commanded a much higher price.

### Varieties Becoming Mixed

Because of the similarity of the plant of the common and Smooth Peruvian, it is probably only a matter of time until the two varieties will be so hopelessly mixed that it will be practically impossible to secure pure seed of the latter.

The Hairy Peruvian, on the other hand, is sufficiently distinct so that by careful inspection of the fields left for seed it can be kept reasonably pure. Furthermore, this variety, together with the common, meets the requirements of the principal alfalfa sections, without the necessity of including the intermediate type.

A few other varieties have been recommended for certain conditions

(Continued on Page 31)

KING OF FORAGE CROPS

Unchallenged, alfalfa reigns supreme as America's foremost hay and forage yielder. And the Hairy Peruvian type now leads in popularity throughout the great Southwest.

# PRACTICAL POINTERS IN FEW WORDS FOR BUSY FARMERS

**Size of Trees to Plant**—As a result of experiments, it has been concluded that small to medium size trees make quicker and better growth than trees which are larger in size when planted.

**Effect of Speed on Draft of Plows**—General purpose moldboard plows, subjected to draft tests, showed an average increase of about 33 per cent in draft as the speed was increased from one to four miles an hour.

**Citrus Blast Control**—In experiments carried on by Fawcett & Horne in Butte County, it has been found that spraying with Bordeaux mixture in the fall protected orange trees from severe attacks of the blast organism during the following winter and spring.

**Winter Green Manure Crops**—The following plants constitute those now used freely as winter orchard crops by California citrus growers in the order named as to comparative acreage: Melilotus indica, common vetch, peas, bur clover, horse beans, fenugreek, melilotus alba.

**Smothering Noxious Weeds**—When other methods fail, weeds such as Russian thistle and certain types of field cress often can be smothered with heavy tar or red rosin building paper spread over the infested area and held in place with stones or old boards. The cost of this work varies from $1.50 to $2.50 per square rod and has been proved justifiable in many cases.

**Estimating Moisture Content of Dried Fruits**—Of interest to fruit growers and owners of dehydrating equipment is the announcement that Professor Christie of the University has developed a method of measuring accurately the moisture content of dried fruits. The process is very rapid and simple. Details are available upon application to the University.

**Date Growing Pointers** — Tests have shown that partial drying before planting is not beneficial to date offshoots, and that rooting is best promoted when a suitable tent-house, kept wet, is erected over the ground. Dry heat has been shown to be more effective in curing dates than steam. Experimenters have developed a simple machine for cleaning dates. By the use of a crank a cylinder lined with toweling cloth is revolved, the motion removing all dust and dirt particles from the dates. A shipment of "Wahi" offshoots recently arrived at the Indio Experiment Station from Western Egypt. This date is much more productive of offshoots than the Deglet Noor.

**Paper as Poultry Food**—No less startling than the use of sawdust in the dairy ration is an experiment indicating the value of "roughage" for chickens. Working on the theory that leg weakness in poultry is due to lack of roughage in the food, rather than to lack of exercise, investigators added paper in the concentration of 10 per cent of the ration, with gratifying results. That the disease characterized by unsteady gait, weak legs, ruffled feathers and anemic colored comb is not scurvy seems to have been thoroughly demonstrated. Green roughage, green clover and orange juice, known as valuable remedies for this disease, did not prevent the progress of the malady. The addition of paper, charcoal and dirt, however, under conditions being favorable, proved entirely successful. Plowing in the poultry yard so that the fowls may feed upon upturned, fresh dirt is considered beneficial because the chickens eat a considerable amount of the soil. The use of roughage appears to be essential to success in rearing young birds, particularly. The fiber of plant tissue seems to have some real value. Apparently, the general use of wheat bran in the ration finds justification.

**Gas Proof Fumigation Tent**—A tent composed of balloon cloth, tried out experimentally in citrus fumigation, proved satisfactory with the use of only 35 per cent of the cyanide now generally employed.

**Sharpen the Sickle to Save the Horse**—Draft tests made on an old mower indicated when the knife was dull and the bar in poor adjustment the draft was increased from 30 to 35 per cent. Little was gained by sharpening the knife and leaving the bar in poor adjustment. Careful farmers cut haying expense and increase efficiency by keeping mowing machines in the best possible condition.

**Feeding Barley to Mares**—Comparative tests conducted with Percheron mares have shown the advantage of lightweight barley as compared with heavyweight barley in the ration of work animals. The barley used was the commercial grade of heavy rolled grain, weighing 47.6 pounds, and the light grade weighing 40.7 pounds to the bushel. The weights of the mares fed on light barley remained the more constant and these animals seemed slightly more thrifty than those fed the heavy barley.

**Soldering**—Farmers have a great deal of soldering to do. It is very easy to make a good flux by dissolving pieces of zinc in hydrochloric acid. The reaction forms a solution of zinc chloride. The formula? Just keep adding zinc to the acid until no more action is observed. The solution can be kept in a glass bottle and applied in the usual way.

**Does the Cow Need Salt?**—As a rule, dairymen realize the necessity of providing a cow with salt, but there seems to be considerable variation of opinion regarding the amount required. The California Department of Agriculture has determined by experiment that, depending on the rations, a milk cow should receive one to one and one-third ounces of salt daily. When such foods as Kafir corn and soya beans are fed, a larger amount of salt is required.

**New Process Poultry Food** — Dried skim-milk and buttermilk are the ingredients in a new powder-form poultry food, the invention of D. Peebles of the Valley Flower Cooperative Creamery at Ferndale, Humboldt County. Because the butter in that locality is manufactured largely from sweet cream, the new product is said to be very low in lactic acid content. It is recommended not as a tonic, but as a balanced ration in itself. The protein content is said to be high. Success is reported in feeding the milk-granules alone as a laying ration.

**Feeding Vs. Curing for Pork Flavor**—Experiments recently conducted indicated that the curing of meat has more to do with the flavor of the product than feeds given the hog.

**Control of Peach Twig Borer** — Although Bordeaux mixture and sprays afford little protection against the borer, it has been observed that almost complete control was secured by spraying with commercial lime-sulphur (1-10) and dry-lime-sulphur (15-20).

**Depth of Applying Fertilizers**—Recent investigations have shown that large quantities of fertilizers which are applied on or near the surface of the ground fail to reach the plant roots. This would seem to indicate the necessity of deep applications, since most of the plant roots are found below the plowed portion of the soil. Particularly does this apply to orchard trees.

**Relation of Equipment Investment to Total Capital.**—A preliminary study of capital investments, covering 24 grain, dairy and fruit farms, developed the following data: The ratio of money invested in equipment to total investment shows that for each dollar invested in the grain business, 19 cents is in equipment; in the dairy business, 58 cents; in the fruit business, 24 cents.

**Unirrigated Summer Forage Crops** — Four summer forage crops, whip-poor-will cow peas, mixed Oriental soy beans, Sudan grass and honey sorghum, were spring planted on fall-plowed land without irrigation to provide green summer forage for hogs. Supplemented with ground barley, meat meal and tankage, these plants proved extremely valuable in the ration. Of the four the Sudan grass provided the most green feed, lasted the longest and gave the highest carrying capacity. Honey sorghum ranked second, whip-poor-will cow peas third and soy beans last.

**Plan "Hopper" Campaign Now** — This is the time to consider possible grasshopper plagues and to prepare for the summer combat. Control at the source seems impossible in the Pacific West, where vast uncultivated areas of mountains, foothills and grasslands afford ideal breeding grounds for at least eight common species of grasshoppers. But the invading army can be met with a systematic barrage of poison bait, fire and other weapons when an invasion of cultivated fields is attempted. All preparations should be made early in the spring. Follow the lead of your horticultural commissioner or farm advisers in taking the hop out of the hopper.

**Cocoanut Meal as Dairy Feed**—Experiments have shown that while heavier feeding of cocoanut meal may increase slightly the fat content of milk, the total butter-fat production as well as the milk yield may be decreased by excessive use of the meal.

**Sunflower Silage Suggestion**—Recent research has resulted in the suggestion that when sunflowers are grown for silage they should be cut earlier than previously has been recommended. In order to save the leaves, which have a tendency to dry up later in the season, it is believed that the most favorable time for cutting is when 10 to 30 per cent of the plants are in bloom. Sunflowers are not injured by light frosts or even such as will kill corn.

**Land Prices Based on Land Values**—Soil surveys made in connection with the State land colonization projects have shown the practicability of basing land prices upon potential production. Soil surveys made on the Durham project resulted in the placing of valuations ranging from $48 to $235 an acre. It is suggested that soil surveys form the bases for all land valuations, giving the settlers a more fair purchase and decreasing the losses and expense incident to colonization.

**Experiments With Field Hay**—Experiments conducted with wheat hay showed that stock ate that which was cut in the blossom stage in preference to other kinds, preferring also the hay cut in the milk stage to that cut in the dough stage. The "ripe" hay was eaten last. Chevalier yielded the finest barley hay and wild oats proved to be the finest of the oat variety. Of the barleys the Nepaul yielded the coarsest hay, while of the different varieties of oats the Roberts gave the coarsest product.

**Orchard on Wornout Land**—For demonstration purposes, the Citrus Experiment Station planted a 60-acre orchard on wornout light land where grain had been grown for many years with no fertilization. Each year a winter cover crop of melilotus indica was grown and plowed under 10 inches deep. Each summer blackeye beans have been grown between the tree rows, the beans being sold and the straw returned to the land in deep furrows at the sides of the trees. No other fertilizer has been used, but the soil has improved greatly and after three years the orchard is an example of fine development. Meanwhile the sale of the beans has paid largely the cost of cultivation.

**Intercropping With Cotton in Orchards and Vineyards**—Cotton, as an interplanted crop, is finding much favor in the San Joaquin Valley of California. It seems to be especially well adapted for use in first-year vineyards or in young orchards. It is reported that a Kern County farmer planted cotton between young apricot trees which were making their third year's growth, harvesting in 1918 from about two acres of orchard land nearly $500 worth of cotton. The cotton plants occupied only 1.27 acres of the entire plat. In this instance the farmer was enabled to pay the upkeep costs of his orchard with the proceeds from his cotton, and in addition to pocket a good profit. Another farmer in the same county set out twelve acres of grape vines and interplanted with two rows of Pima (long-staple cotton) placed between every two rows, obtaining a yield of nearly a bale to an acre. At the end of the season his vines were in excellent condition; he lost only one in the entire lot. Specialists say the practice is a profitable one; the cotton is as good as when grown alone, and the young grape vines are equal in every way to those grown without an intercrop.

## Ben Gonnadooit Says

*HO-HUM! There ain't much in life fer a man that's always in pore health. I had an awful time with rheumatiz this winter, brought on by wearin' leaky boots, which I didn't get around to patchin' until it was too late to do any good.*

*Now I feel myself comin' down with spring fever. And experience has shown me there ain't nothin' that will help spring fever but restin'. So I have about decided t' rent out my fields on shares, lettin' th' other feller do th' work, while I take a couple o' weeks off fer a fishin' trip.*

*My share o' th' crop money ought t' pay th' interest on my mortgage an' then I ken rest easy for a while an' maybe get a job tendin' store next winter, where I won't be exposed to th' weather.*

*I don't think I was cut out to be a farmer anyway. My health is too delicate. Funny, though! In spite of all my sufferin' I gained fifteen pounds this winter. Strange what queer turns sickness will take!*—Ben Gonnadooit.

# Fresno's Garden of Eden—A Twentieth Century Fig Story

*IN his expeditions to various localities, the editor of ORCHARD and FARM visits many famous and interesting ranches and agricultural districts. Here is the story of one of the most remarkable colonization schemes in California.*

*Of special note is the fact that ORCHARD and FARM in January, 1917, published an article concerning this same project. At that time it was regarded by many as a visionary experiment. Today the dreams of its promoters are beginning to be realized.*

*The Forkner fig gardens have passed from the embryonic or colonization stage to the threshold of final achievement. Where a few years ago stretched thousands of acres of dry grain land, now stand fig trees which, according to estimates of conservative producers, will add to the wealth of the Fresno district more than $2,000,000 annually.*

By James C. Knollin

THE vine and fig tree are the true heritage of every loyal Fresno County booster.

And who could contradict the enthusiast who insists that here lies the approach to the Biblical Garden of Eden? It is said that the fig tree furnished both food and raiment for Adam and Eve. Present developments in the Fresno district merely prove that history repeats itself.

This statement is not offered as a travesty on present styles of women's wear, for the fig trees which promise so much in the way of increased wealth for California undoubtedly will provide the means of purchasing almost unlimited quantities of clothing, even at ultra-modern prices.

And even should milady actually revert to the simplicity of dress of Mother Eve (who, in the light of current events, could deny the possibility?) it is estimated that the leaves put forth by the fig trees of the Fresno district alone would furnish a change of costume each day of the year for every lady of the land.

### A Permanent Asset

If, as economists assert, the greatest agricultural wealth is built upon permanent production rather than speculation, the fig industry should prove one of the most important of California's assets—for the fig tree is supposed to live forever. Once established it is practically infallible in production and free of pest or disease.

The yield per acre is tremendous, the cultivation and propagation simple; and, according to those who are developing the industry, the possible demand almost unlimited. But the fig growers are taking no chances along this line. Anticipating greatly increased production as new acreage comes into bearing, they have affiliated themselves with the already established Peach Growers' Association for the purpose of developing the potential market.

Among the projects already under way are those involving the use of the different grades of figs for by-products and for use in bakery goods. Great strides are being made also in canning and preserving fresh figs. The drying and packing of dried figs has been carried beyond the point of experimentation and an attempt is being made to standardize the pack under the Blue Ribbon Brand.

A by-product factory already is manufacturing fruit alcohol at a price which makes it possible to pay 4 cents a pound for "cull" figs. And after the figs are processed there remains an excellent hog feed. Therefore, it is believed that practically no waste will be involved in disposing of the largest crop.

Included in the fig acreage is a rapidly increasing planting of Kadotas, which it is proposed to market fresh and to feature as a canned and preserved product. While a number of fig experts profess the greatest admiration for the Black Mission, that variety comprises comparatively a small percentage of the present planting. Over 85 per cent of the current production, it is estimated, is made up of Calimyrnas. All these varieties, as well as the Adriatics, are represented in the great Forkner fig gardens.

Covering an area of over 6000 acres, these orchards represent the ultimate dream of a California real estate and colonization man, J. C. Forkner. The Fresno project is described by his intimate friends as "the child of his heart."

Commenting upon its development, Fred W. Gregory, special sales agent, said: "Mr. Forkner's big idea has succeeded because it was founded upon honesty and square dealing. He is among those who pioneered in placing private colonization upon a sound financial basis, while at the same time giving the buyer a real opportunity to make good. But even with this plan he could not have carried the project to success had not he and those of us who are associated with him held the utmost confidence in the future of the fig industry.

"This confidence all of us have backed with our own money; we are heavily interested in fig orchards along with the hundreds of buyers who have purchased tracts of all sizes.

"First, we assured ourselves that the climatic conditions were right. As a shining example we had the great Markarion orchards adjoining, which, under old-world methods, had achieved unusual success. The fig thrives only under certain very particular conditions. It is very susceptible to moisture. Excessive humidity during certain periods cracks and sours the fruit.

"It is necessary, furthermore, that the temperature remain uniformly high during the time when the fruit is developing. Good drainage and a light soil high in minerals are preferred, while some elevation above ordinary valley levels seems to be essential to complete success."

Believing that he had hit upon the right combination of conditions, Mr. Forkner interested E. A. Bullard, pioneer grain grower, whose ranch of 6200 acres was acquired for the "ground work" of the big idea. Later adjoining tracts were added. Coupled with the belief of Mr. Forkner and his associates in the value of the land and climate, was their feeling of assurance that the fig industry had a great future in California.

### Attractive Prospects

The native growers from the Mediterranean countries told them of the existence of bearing trees, ancient beyond the inherited knowledge of the oldest inhabitant. Horticultural authorities pointed out also that the fig tree lives and bears practically forever, while the experience of the local growers had shown that crops were sure and heavy in the Fresno district.

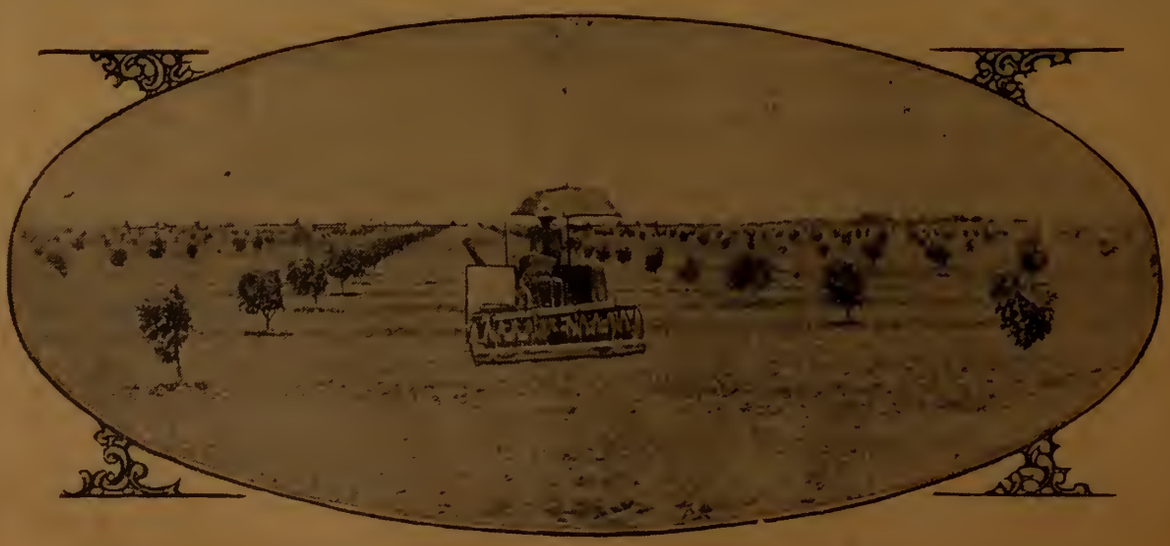
Study of even the most conservative estimates of the promoters makes it easy to understand why it was possible to interest hundreds of investors. Using the statistics of the Forkner Company, we find that the prospective investor figured on his first income during the fifth year, which it was estimated should reach at least $100 per acre. During the sixth year this would be increased to over $150 and by the eighth year should reach more than $350.

### Estimate of Income

As the fig tree approaches full bearing capacity, it was estimated, the income would increase to nearly $1000 an acre. According to the Forkner plan, the buyer of say 18 acres (which is the average size tract in the Forkner project) paid about $85 per acre for leveling and preparation of the land. After the trees were planted the bills that came to him for settlement amounted to possibly $85 per acre additional.

After three years, when he had paid out about $250 an acre, the orchard was approaching bearing age. At the end of the fifth year he would owe the cost of the land plus accrued interest (which would total about $215 per acre), this to be paid out in five equal installments. The production of the orchard, it was believed, would meet the payments and leave the owner with his property and all improvements completely paid for at the end of 10 years!

Thus the owner of twenty acres of Forkner fig lands considers himself the possessor of an income property that will maintain him in comfort for the balance of his life. An impossible dream? So said many who were not convinced, but the best testimonial to the success of the plan is the fact that most of the buyers are still "sold" on the idea, and 90 per cent of them ardent enthusiasts.



That the project seemed daring to many of the residents of that section, however, is not at all strange. They believed that most of the Bullard ranch

(Cont. on Page 19)

# Dehydrated Pumpkin Flour Is Popular

***Until the advent of the canned product, that great American dessert, pumpkin pie, was associated only with the fall months and more especially with Thanksgiving dinner. Now dehydration promises more—an almost unlimited supply of pumpkin pie, available at low price, during each month of the year, with profit to the farmer.***

By Arthur W. Christie

ALMOST any man will swear that no modern method will produce pumpkin pie such as "mother used to make."

Yet the younger generation at least must be pleased with the present product, for in California alone there has been an increase in production of canned pumpkin from 9000 cases in 1915 to 300,000 cases in 1919. Still further triumphs for the ever-popular pumpkin pie are indicated by the rapid development of dehydration.

It has been pointed out by the writer in this series that if dehydration plants are to be profitable they must operate on a variety of fruits and vegetables so as to keep busy during the greater part of the year. Pumpkin fits into the dehydration season very well; it is available from October to January and can be stored for a considerable time without spoiling. Dehydrated pumpkin flour promises to become one of the most valuable products of this important industry.

One large dehydrating plant already has produced a considerable quantity of pumpkin flour, the first carload of 50,000 cans reaching Chicago last January. Another concern produced some four carloads of dehydrated pumpkin last season and are reported to have contracted for 1000 acres of pumpkin near Lodi for 1921. The Middle West also is awakening to the possibilities of this product, four fifty-ton plants being contemplated at Wichita, Kan.

### Faults of Canned Product

Fresh pumpkin contains about 93 per cent of water and must be cooked and screened before pies can be made. the usual canning process the small pieces of pumpkin are cooked in a retort and then pressed to prevent the canned product from appearing watery. This process results in a loss of about one-half the soluble sugars and flavors in the drained water. Dehydrated pumpkin, containing only 5 per cent of moisture, is from ten to twelve times as concentrated as canned or fresh pumpkin and retains all the food value of the original pumpkin.

Several varieties of pumpkin are blended to make the flour, the best variety being the "California Cheese." Certain darker colored squashes generally are added to make a better color. The present method of producing pumpkin flour in California is approximately as follows:

### How Flour Is Made

The pumpkins are placed in tanks of water and the dirt washed off with brushes. The clean pumpkins are thrown on tables and cut into halves, or smaller pieces, and the stems and seeds removed. This represents a loss in weight of about 5 per cent. The seeds often are separated and dried and used to plant the next season's crop. Next the pieces of pumpkin are sliced (a rotary apple slicer commonly being used) and are spread one layer deep on three by three-foot screen trays, about two pounds per square foot. The trays of pumpkin then are stacked on trucks and run into a steaming cabinet.

In order to preserve the natural color the pumpkin is blanched or steamed until slightly soft, this process requiring from ten to twenty minutes, according to its quality or coarseness. The proper time can be judged only by trial. The trucks of steamed pumpkin next are placed in the cooler end of an air-blast tunnel dehydrator, usually at a temperature of 110 to 120 degrees F. The pumpkin moves progressively through the tunnel, being finished at a temperature of 140 to 145 degrees F. The drying time varies from ten to twenty hours, averaging twelve to fifteen hours. The drying of pumpkin is retarded considerably unless air of 20 to 30 per cent relative humidity is used.

### Drying Pointers

Pumpkin has been dehydrated experimentally in four to six hours and without doubt the capacity of commercial dehydrators can be increased considerably by the use of somewhat higher temperatures and increased volumes of air, providing the quality of the product is safeguarded by air containing sufficient humidity.

The pumpkin must remain in the dehydrator until practically anhydrous in order that it may be ground to a flour without gumming in the mill. Dehydrated pumpkin readily absorbs moisture from the air. Consequently the "chips" must be milled as soon as removed from the dehydrator, or redrying will be necessary.

The grinding of pumpkin flour has given the manufacturers considerable trouble. So far a mill consisting of a series of toothed beaters revolving rapidly within a cylinder has proved most satisfactory.

After grinding the flour is passed through a vibrating sieve of seventy to eighty mesh and stored in large friction-top cans of twenty-five pounds capacity. These large cans are suitable for the baker trade, while for retail trade the flour is repacked in eight-ounce friction-top cannisters. The shrinkage in the dehydrating process may vary from 8:1 to 15:1, depending upon the size of the pumpkins and their water content. The average shrinkage is about 12:1 in California. Unfortunately no data on cost of production are available as yet.

Since the proof of any pie is in the eating, pies were made from both pumpkin flour and the best grade of canned pumpkin. As a result of these tests the following recipe was developed and is recommended:

### Recipe for Pie

*Place four level tablespoons of pumpkin flour in a pan, add one cup boiling water and let simmer on a stove while preparing pie crust. Then add to the pumpkin two eggs, two level tablespoons of wheat flour (thoroughly mixed with one-half to three-fourths cup of sugar) a pinch of salt, one cup of milk and spices to taste. Beat together with an egg beater, pour into a lined pan and bake slowly.*

Without the benefit of direct comparison the average person would not know but that the pie was made from fresh or canned pumpkin.

The relative costs of dried and canned pumpkin were compared. For retail trade the flour is sold in eight-ounce cannisters which wholesale at about 33 cents each and retail at about 50 cents. According to the above recipe, one cannister is sufficient for nine and one-half pies at a cost to the housewife of 5.4 cents per pie for the pumpkin. The smallest size can weighs two and one-half pounds and wholesales in California at about 11 cents and retails for around 18 cents. The contents of this can will make from four to five pies at a cost of about 4 cents.

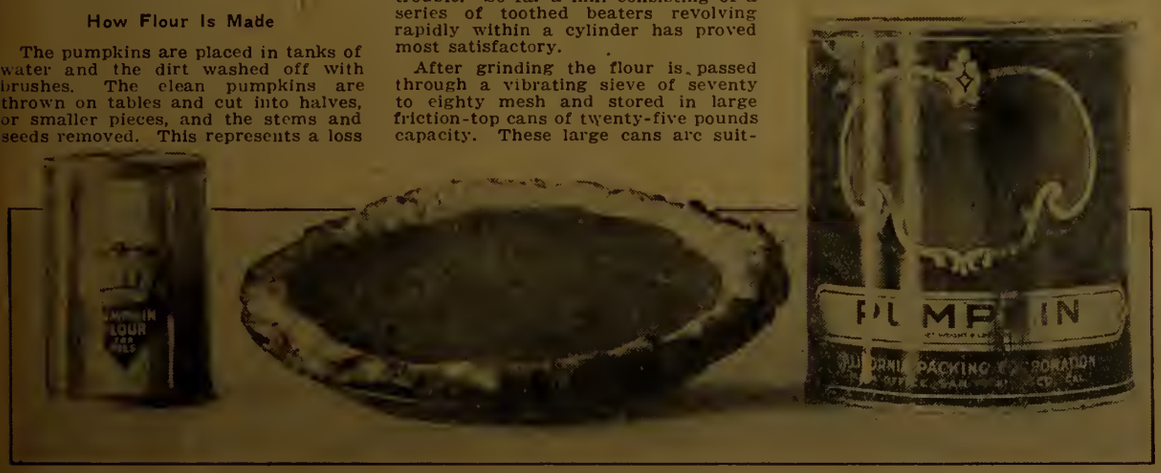
### Can Be Used Gradually

The present price of canned pumpkin is abnormally low, while the cost of pumpkin flour undoubtedly is on a higher level than can be maintained. It is probable, therefore, that pumpkin flour will become just as economical as canned pumpkin, if not cheaper. It has a decided advantage over the canned pumpkin in that one pie can be made at a time and the remainder of the flour kept indefinitely in the closed cannister.

Bakers can obtain the pumpkin flour in large twenty-five pound cans at a cost of approximately 40 cents per pound. This makes the cost of pumpkin per pie only 2 cents; the same as if ten pounds of canned pumpkin were used.

Pumpkins may be grown with little effort either by themselves or in conjunction with other crops nearly everywhere in California.

The pumpkin is a heavy yielder, is not very perishable, and, because of its late maturity, offers a commodity upon which the dehydrator can operate long after the fruit season is over. Dehydrated pumpkin flour seems assured of a constantly increasing demand.




This is one of a series of articles on dehydration written especially for ORCHARD and FARM by Professor Christie, of the Fruit Products Department, University of California.

## Let Us All Aid in Ridding California of Rats

THE rat is a world menace. Not only does it inflict over [illegible]000,000 000 worth of damage to [illegible] America but also it carries [illegible] the worst diseases [illegible] In terms of labor, at [illegible] in the United States [illegible] all their time to the [illegible] of 100,000,000 rats!

First among preventive measures is protection of all food supplies. The removal and destruction of refuse which might furnish shelter and food for rats also is of great importance. All buildings and granaries should be rat-proofed by means of cement and tin. Rat-proofing should be a prominent specification in all new farm construction, and older buildings should be repaired with this end in view. All drain outlets should be sealed with wire cages or some similar protective device. With the food supply protected and shelters removed, the rat soon will succumb to traps and poisons, and a real menace to America's health will be destroyed. Here is a chance for every farmer to co-operate in an important work.

## Cured His RUPTURE

I was badly ruptured while lifting a trunk several years ago. Doctors said my only hope of cure was an operation. Trusses did me no good. Finally I got hold of something that quickly and completely cured me. Years have passed and the rupture has never returned, although I am doing hard work as a carpenter. There was no operation, no lost time, no trouble. I have nothing to sell, but will give full information about how you may find a complete cure without operation if you will write to me. Eugene M. Pullen, Carpenter, 43-G Marcellus Avenue, Manasquan, N. J. Better cut out this notice and show it to any others who are ruptured—you may save a life or at least stop the misery of rupture and the worry and danger of an operation.

# Attention! The Gong Has Sounded! May the Fight Be Fast and Furious!

## How Dead Is Dobbin?

*HORSE breeders say he is more alive than ever—alive and kicking, in fact. His friends are "kicking" also, because they say he is not getting a square deal. ORCHARD and FARM does not propose to allow man's faithful servant, the horse, to have anything but a square deal. Nor, on the other hand, will we allow friend tractor to be dealt any foul blows below the belt-pulley. This is to be a fair fight with no favors. Perhaps the result will be a draw, but "you never can tell."*

*Seriously, the issue is still great, there is much to be said on both sides, and every subscriber to ORCHARD and FARM can gain practical help from arguments to be presented in this series.*—The Editor.

## Horses Are Supreme in Field Work

By Wayne Dinsmore

SECRETARY, HORSE ASSOCIATION OF AMERICA

WITHIN the last few years, determined attacks on horse use and production have been made by the manufacturers of and dealers in tractors and trucks.

Analyzing the various arguments put forth by the advocates of mechanical motive power we find that the main contention of tractor advocates is that the use of tractors makes possible greater crop yields than can be secured by the use of horses or mules, as motive power, and that the cost of production is lessened by the use of mechanical motive power units.

Let us examine these arguments in detail, in the light of existing evidence.

Their first claim is that crop yields are increased. They present no adequate proof to substantiate any such claim. Exceptional cases may be cited to their advantage, but the increased yield in such cases is in spite of tractor use, perhaps; who can tell? At any rate, the authorities of the Farm Management Department of the New York College of Agriculture say: "Our investigations to date do not reveal increase in crops from the use of tractors."

### Citations to Disprove Tractor Claims

The Illinois College of Agriculture, Department of Farm Management, which has just completed exhaustive cost-accounting studies covering the past seven years, involving, in later years, tractor use on one hundred farms, says: "Claims are often made that the tractor enables the farmer to plow deeper, to do the work in a shorter time, and to better prepare the seed bed. All these advantages should ultimately be reflected in crop yields. None of the one hundred farmers interviewed, however, gave increased crop yields as an advantage for the tractor. It is quite probable that the use of the tractor has resulted in increased crop yields where the horse power was inadequate to properly perform the work before the tractor was added."

Investigations made by the Department of Agriculture, reported in Bulletin 719, show that both increases and decreases in crop yields were reported from the use of the tractor, but that "the increases are not sufficient to warrant the farmer placing any dependence on the tractor in this respect."

Investigation of tractor experience by the Iowa and Kentucky Experiment Stations both fail to make any mention of increases in crop yield from the use of tractors. Their silence on this point is eloquent, for, had increases in yields existed, they would certainly have been reported.

The foregoing citations are all from experiment stations, colleges of agriculture, or the Department of Agriculture—who have nothing to sell, but who endorse the statement of the official agricultural chemists, that "it is as truly the duty of science to protect agriculture from error as it is to afford new truth."

### Experiences of Farmers

Personal comment on the subject from leaders actually engaged in agriculture follows: C. S. Noble, president of the Noble Foundation, Ltd., at Nobleford, Alberta, who is recognized as one of the most successful farmers in the Dominion of Canada, and who holds the world's record for wheat production for large yields on a large acreage, says, under date of May, 1920: "At present prices of grains, we believe the horse-plowed lands will produce from three to four dollars' worth more grain per acre than that plowed with steamers."

I. D. O'Donnell, president of the Farm Loan Board at Billings, Mont., who owns and operates a 640-acre farm near there, says: "I have used

(Continued on Page 36)

## Which Is the More Satisfactory Source of Farm Power—Gasoline or Grain?

*PERHAPS you have considered this question settled long ago. But Mr. Dinsmore stoutly maintains that reports of the death of Henry Horse and Maud Mule have been grossly exaggerated.*

*He even goes so far as to accuse power-farming advocates of inaccuracy and unfairness. Whatever our belief, we cannot fail to admire the manner in which he rolls up his sleeves and jumps right into the middle of the fight.*

*In fact, this is only the opening gun in a friendly combat which promises to become a "free-for-all." When the principals have had their say, ORCHARD and FARM subscribers will take the platform.*

*Are you an enthusiastic tractor farmer, or do you still maintain that the horse is the more satisfactory and economical source of farm power? Write the editor concerning your experiences. What is the real situation here on the Coast? Give us your views; quote facts and figures. Come on! Get into the argument!*

## Why Tractors Are Displacing Horses

By A. M. Sedgwick

OF THE AVERY CO., MFGRS. OF TRACTORS AND MACHINERY

TO raise the biggest crops possible at the least cost possible is the big problem of the farmer today.

Even after the present readjustment period is ended the farmer will remember the lesson that the only answer to the problem of more economical production is to be found in the tractor and the tractor implements, which also means the motor cultivator.

There has been some talk of discarding tractors for horses because fuel is so high and corn so low. Do you hear any talk of putting the truck in the shed and hauling with horses, or of putting all the automobiles in storage and bringing back the days of the "one hoss shay?" The farmer can't afford NOT to use motor power in his farm work. There are many reasons why—the increased production at decreased cost is one.

Government statistics show that it requires from one-fifth to one-fourth the amount of grain produced by one horse to keep the horse, while the fuel for the tractor cannot be used as food for either man or beast. Our increasing population demands increasing food production, another argument for intensive farming with tractors.

### Statistics to Show Tractor Superiority

The Connecticut Agricultural College lists in a recent bulletin what they feel are the disadvantages incurred in using the tractor, but they also list the advantages, which greatly overtower the disadvantages. They allow seven years as the average life of a tractor. There are, however, at work today hundreds of machines built in 1909-'10 and '11, and the finished product of today cannot be compared to the more or less experimental tractor of ten or twelve years ago. According to their figures in 1919, the cost of plowing with a tractor for a day was estimated at $5.50 per 10-hour day. The fuel cost was. Gasoline, 94c per acre; kerosene, 55c; lubricating oil, 22c per acre; hard grease, 5c. Today this would be about 50 per cent greater, but still would represent a great saving over doing the work with animal power.

Here are some figures which were compiled from many reports and letters from tractor users and which show a saving of $24.14 per day over horses.

**Average Cost Per Day With Tractor**

| | | | |
|---|---|---|---|
| No. Acres. | 17 7-10 | Cost Oil... | 1.82 |
| Gal. Fuel . | 28 3-10 | Cost Men. | 3.00 |
| Gal. Oil .. | 2 1-5 | | |
| Cost Fuel | $9.44 | Ttl. Cost | $14.26 |

**Average Cost Per Acre With Tractor**

| | | | |
|---|---|---|---|
| Gals. Fuel.. | 1 3-5 | Cost Oil .... | .10 |
| Gals. Oil .. | 1-8 | Cost Man ... | .18 |
| Cost Fuel... | .53 | | |
| | | Total Cost. | $.81 |

**The Costs With Horses Are:**

**Average Cost Per Day With Horses**

| | |
|---|---|
| 3½ men @ | $10.50 |
| 16 horses | 28.00 |
| | $38.50 |

**Average Cost Per Acre With Horses**

| | |
|---|---|
| Cost per day | $38.50 |
| No. of acres | 17 7-10 |
| Cost per acre | $.2.17 |

Deduct from $38.50 the tractor cost of $14.26 and we have a saving of $24.14 per day in favor of the tractor. Deduct from $2.17 the tractor cost of 81c and we have a saving of $1.36 per acre in favor of the tractor.

An accurate account of feed and all the costs of keeping a team of horses—good workers and good eaters—was kept by a New York farmer The feed cost alone was $453.98 for the year, with no charge for summer pasturage. Adding cost of care at $3.50 per day, depreciation at 10 per

(Continued on Page 36)

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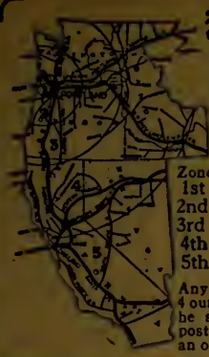

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**For Women** 24DV267—Black. $3.49. 24DV264—Brown. Widths D, E, EE. Sizes 2-½ to 8. Women's popular oxfords. Soft kid finished leather. Shipping weight, 1-1-4 lb. **$3.49**



## Bargains in Fine Suits for Men

Here is the result of our effort to produce a really good All-Wool suit of choicest serges and worsteds. The remarkable price is the result of buying direct from the factory where the latest designs are produced. Three button, soft roll lapel. Cuff bottom trousers, usual pockets, beltloops and suspender buttons. Excellently tailored. Sizes, chest 35 to 44 inches, waist 30 to 42 inches, inseam 30 to 35 inches. In ordering state chest, waist and inseam measurements—also height and weight. A surprising value that we guarantee to please. 39DV1024—Blue Serge. 39DV1028—Black Serge. 39DV1032—Gray Serge. 39DV1140—Gray Worsted. 39DV1036—Brown Serge. 39DV1144—Brown Worsted. 39DV1148—Blue Worsted. Shipping weight 5 pounds

**$29.85**

**Boys' Suits Reduced** Here is a winner among boys' suits—a splendid quality model at an incredibly low price. All-wool fabrics. Cash and lower pockets have flaps. Twill body lining. Full lined knickerbockers with usual pockets. Double sewed seat, crotch and inseams. Exceptional tailoring throughout. For the lad who is active, this suit will stand a lot of wear. Remarkably low in price when you consider the high quality of the fabrics. Sizes 10 to 18 years. 39DV3202—Blue Serge. 39DV3340—Brown Cassimere. 39DV3344—Olive Cassimere. Shipping weight 4 pounds. Special . . . . . **$10.75**

**Raincoat** 42DV5301—Here is our leader in a remarkable value olive tan raincoat of asia cloth. Sizes 34 to 46 inch chest. Average length, 49 inches. Shipping weight 3 pounds. Now . . . . . **$6.75**

## Save on Hosiery

**Women's Seamless Mercerized Hose.** Fine gauge, neat, dressy. Wide elastic tops. Reinforced heel and toe. Double soles. Very economically priced. Sizes 8½ to 10. Shpg. wt. for 3 pairs, 10 ounces. Special 30PV9812—Black. Price, 3 pairs . . . **$1.19**

30PV9965—Children's black, two thread cotton hose. Sizes 6 to 10. Ship. wt. 4 oz. Pair . . . **39c**

**Men's Hose** 30DV1388—Black. A well made, medium weight half hose of fine, combed cotton. High spliced heels and double soles. Sizes 9½ to 11½. Shpg. wt. 4 oz. Price, pair **25c**

30DV1409—Box of four pairs of above in colors, black, gray, brown and blue. Four prs. Shpg. wt. 1 lb. **99c**

**Save Now On This 10-Piece Set of Royal Aluminum**

Here is a bargain price on a beautiful and handy 10-piece assortment of heavy, pure bright, Royal Aluminum. Made seamless. Consists of the articles most needed in the kitchen daily. This set will be appreciated by the particular housewife, because it makes cleaning easy and adds to the tidiness of the kitchen. Think what a low price is set. We guarantee your complete satisfaction with this purchase. Order today. Shipping weight, 10 pounds. 186DV1163—Sale price. Set complete . . . . . **$6.98**

## DRY GOODS Specials

We offer here an American calico in either dark or light patterns, width about 24 inches, at a special price of

**12c Per Yard Or 10 Yards for $1.15**

16DV3228—Fine quality American calico printed on black background two of which are shown in the upper patterns at left. This fabric is very desireable for house dresses, aprons and children's apparel. Give this number and the letter of pattern when you send your order for dark background.

16DV3226—This is the light background calico, patterns shows two of the designs at left. Best quality and fast colors. Give this number and letter of pattern when ordering light ground calico. The remarkably low price is only one of the money-saving offers open to our customers. See page 85, catalog 94 for full range of patterns. Shipping weight of above, 10 yards, 2 pounds.

## Note These Low Prices:

**Topless Corset** 32DV7048—White. Sizes, 20 to 30. 32DV7049—Pink. Sizes, 20 to 30. Wt. 15 oz. Give size and color. An excellent topless model made of white or pink coutil. Has elastic insert at top. Lightly boned with "Won't-Rust" steels. One retaining hook below 8½ in. front clasp, with four elastic web hose supporters. Lgth. in back, 14 in. Order size one in. smaller than waist measure taken over corset. **$1.59**

**Child's Chambray Rompers** Sizes 2 to 6 years. 32DV6618—Blue. Shipping weight, 5 ounces. Here is a chance for mother to cut the cost of play garments for the young folks. These splendid rompers made of good quality chambray. Yoke effect in front. The collar, belt and top of pockets are piped with white linens. Elastic at knee. Open at back A real bargain at . . **89c**

**Women's Nightgowns** 32DV5125—White. Slip-over gown of nainsook. Neck and sleeves are finished with lace edging. Shirring below yoke in contrasting colors. Sizes 34 to 44 inch bust. Shipping weight 6 ounces. Priced quite low. . . . **79c**

**Women's Thread Silk Hose** 30DV1725—Black. Sizes 8½ to 10. Shipping weight 3 ounces. A worth-while bargain, unusually fine quality thread silk stocking. Made seamless in the feet with narrowed ankle and the much desired seam up the back. Double sole. Wide, extra strong, double top of mercerized lisle. Pair . . . **89c**

*Send orders from this ad to Dep't.*

## Underwear—Sold for Much Less

**Ladies'** Fine ribbed cotton union suits. One of our most popular Spring garments. Low neck, no sleeve. Knit of fine gauge cotton. Shell trimmed knee or cuff knee, reinforced crotch. Extra wear.

**Regular Sizes**—34, 36 and 38-inch bust. 29DV2640—White. Shell trimmed knee. 29DV2673—White. Cuff knee. Price each . . **48c**

**Extra Sizes**—40, 42, 44-inch bust. 29DV2641—White. Shell trimmed knee. 29DV2675—White. Cuff knee. Shipping weight, 60 ounces. Price . . . **50c**

**Men's** Here is an opportunity to save on your Spring and Summer underwear. Men's athletic union suit of pajama check nainsook. Elastic webbing across back. Pearl buttons. A real bargain. Shipping weight 13 oz. 29-PV8837—White. Sizes 34 to 46-inch chest. Price now . . . . **79c**

## Coat Style Chambray Shirt

**Special** 31DV645—Blue. Sizes 14½ to 17-inch neck. Shipping weight, 1 pound. State size wanted. Here is an ideal work shirt—one that will give extra wear and comfort. The material is closely woven of good quality chambray. All seams are double stitched. Made coat style with flat collar and extension neckband tab, one pocket, continuous faced sleeves. Interlined collar and cuffs and center plait. Cut in good full sizes. This garment embodies all the requirements of a genuine work shirt of greatest value. It will pay you to buy several of these shirts. Now..... **99c**

**Boys' Blue Chambray Shirt** Sizes 12 to 14½ inch neck. State size wanted. 31DV863—Blue. Shipping weight, 8 ounces. Strength of material, best of workmanship, comfort in design and good value for your money makes this shirt a real bargain. Interlined collar, four pearl button front, faced sleeve with buttoned cuffs, one big pocket. **83c** Ea.

**10,000 Miles Guaranteed Cord TIRES**

164DV2971—Famous Riverside cord 30x3½. Made to fit clincher rim. Stronger, heavier and more durable than fabric tires. 10,000 mile guarantee. Ship. wt. 17 lbs. Now **$19.25**

Write for our big 96-page Auto Supply Book. It will help you cut down your Auto expenses. Ask for 164V.

## Special Apron Bargain

Made of standard count percale that will wear and launder well. Sash of self material which ties in back gives a more dressy appearance to this stylish apron. Trimmed in harmonizing colors. You will find this apron a most desirable selection. Ship. wt., 2 lbs. Sizes 34 to 46 bust. Give actual bust measure. 36DV7879—Dark colors only. Price each . . . **$1.00**

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**PORTLAND, OREGON**

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# EDITORIAL DEPARTMENT

## Timely Topics among Farm Folk

SUNSHINE is good medicine.

It costs nothing and is both a preventive and a cure.

We should let sunshine into our homes, stables, poultry houses and hearts.

### Better Sales Methods

MANY conspicuous farming achievements have been built upon modern sales and advertising methods. The producer who establishes and advertises a certain brand, backed by a superior product, frequently reaps a big reward.

The farmer who sells his fruit, eggs, butter or vegetables to special customers at a premium over the regular market price has a tremendous advantage over his brother who depends upon the laws of supply and demand or allows himself to be the victim of market manipulation.

### Grapefruit Success

ONE of the most interesting stories of marketing success that has come to our attention in recent years is that of E. Steiner, a Brawley (Imperial County) grapefruit grower. When regular shipments of grapefruit were quoted at from $1.75 to $2.25, Mr. Steiner was selling the product of his trees at $5.50 a box, his principal customers being the Ambassador Hotel and the Jonathan Club of Los Angeles, both very exclusive and extremely particular as to their cuisine. The wealthy connoisseurs who patronize these establishments demand the best and are willing to pay for it.

Mr. Steiner, enthused by confidence in his own product, sought and obtained this highly desirable trade. He attributes the unusual quality of his grapefruit to the favorable growing conditions of the Imperial Valley, where the grapefruit is so sweet that it may be eaten without sugar. But those who know him emphasize the extreme care that he gives his fruit in growing and packing.

### Confidence in Future

MR. STEINER believes a great future is in store for Imperial Valley grapefruit. Practically no trees over ten years of age are to be found in the valley. An increasing acreage, however, is coming into bearing, and the Growers' Co-Operative Association is making big plans.

California no longer concedes the superiority to Florida grapefruit, and California growers, either individually or collectively, no longer bow to the will of the middleman.

---

Uncle Wiseacre remarked recently that each of us can find something in the other to admire. "For example," he said, "I know a man who should be applauded for not singing in public."

### The Farm Loan Plunderbund Is Defeated

AFTER having tied up the Federal Farm Loan Banks for months and prevented action upon applications for nearly $500,000,000 in loans, the private farm loan interests went down to defeat recently before the Supreme Court of the United States.

Not only was the Farm Loan Act declared valid and constitutional, but also, according to Commissioner C. D. Lobdell of the Farm Loan Board, the opinion removed every shadow of question as to the legality of both the banks and their bonds.

As pointed out previously by ORCHARD and FARM, the private land loan interests always have smarted under the provisions of the Farm Loan Act. They have done everything in their power to prevent the success of the Farm Loan Banks, which are the only means ever provided for releasing the farmers from the clutches of greedy money lenders.

These private bankers even formed a powerful association and spent money recklessly in their endeavor to cripple the farm loan system. Great was their elation, therefore, when an injunction was demanded by a stockholder in a Kansas City title and trust company, who insisted that this institution be restrained from investing in land bank securities.

As soon as the question of legality was brought up, other financial institutions hesitated to take the bonds and, since these are the only source of funds for loaning by the Farm Loan Banks, all existing and new applications were held up until the case was decided by the Supreme Court.

Meanwhile, the private money sharks worked their little hammers overtime, losing no opportunity to take advantage of the tie-up and ignoring all rules of a fair fight by continuing to strike their helpless and crippled opponent.

### Farmers Have Had Cause for Complaint

TRUE, there has been much criticism of the Farm Loan Banks among the producers themselves. Particularly have farmers in the Imperial Valley and other districts felt that they had cause for rancor. The Berkeley Land Bank has refused in certain cases to approve loans which the farmers felt were entirely justifiable.

There has been some criticism also of the system itself, which involves considerable red tape in the floating of loans. But critics of the Farm Loan Act should remember that it was established without precedent as an experiment, subject to improvement and development. The system must be preserved.

That it has its faults nobody can deny, but it is a beginning towards financial freedom for agriculture. Every friend of the farmers, therefore, will rejoice in the Supreme Court decision which again has set the wheels of the Farm Loan Banks moving.

### Can Point to Big Accomplishments

DURING its comparatively brief existence, the Federal Land Bank system has loaned nearly $183,000,000 to over 75,000 farmers. Applications now pending total nearly half a billion dollars.

The defeat of the plunderbund comes at an opportune time. The farmers are fighting with their backs to the wall against a tremendous decline in farm product values, and have been threatened with destruction by financial tightness and business depression.

The release of the Federal Farm Loan Act from the coils of private greed should do much to hearten the farmers, lighten their new burden and again bring prosperity to rural America.

### Why Countenance Gambling in Grain?

THE elimination of gambling on grain futures is demanded by the American Farm Bureau Federation and the Farmers National Grain Dealers' Association. The farmers point out that they do not object to legitimate dealing on the Board of Trade in actual grain or its equivalent. They do object very strenuously, however, to the present practice of betting on market fluctuations.

Data have been collected showing that the gambling operations at Monte Carlo do not return total net receipts equal to one-third the commissions alone derived from the sales on the "futures" market of the Chicago Board of Trade.

The farmers contend that purchase and sale of grain by individuals who have no grain to deliver on the contract, do not want to receive any real grain and do not expect to deliver or receive grain, constitutes the greatest gambling institution ever organized on the face of the earth.

They demand that the credit resources involved in these vast speculative transactions, aggregating billions of dollars annually, be employed in productive channels. By way of constructive suggestions, the farmers' organizations offer the following remedial measures:

(1) Investigation and supervision of the activities of the grain exchanges; (2) opening of the exchanges to farmers' co-operative organizations, which at present are barred from practically all grain exchanges in the United States; (3) establishment of a more efficient world crop-reporting system which will give information impartially to producers, dealers and consumers; (4) levying of a heavy tax upon dealing in "privileges"; (5) ultimate elimination of short selling on "futures."

The farmers express surprise that so much of the energy of reformers is directed against other forms of gambling while the grain exchanges are permitted to carry on these operations.

Not many years ago the public and the grain operators would have laughed at such statements from the farmers. The agriculturist of the new day, however, does not hesitate to attack any problem that vitally affects his life and business. In this instance he has sufficient evidence to make a very strong case.

### Business As Usual

IN THIS period of uncertainty, a few great business concerns are taking the lead in bringing about a sane return to what President Harding has called "normalcy." Among these is the J. I. Case Threshing Machine Company of Wisconsin, one of the largest manufacturers of farm implements, machinery and tractors in the world.

Not only are the factory and sales force being retained intact, but also a new, extensive and far-reaching schedule of service schools is being organized throughout the country, according to a recent report issued from the "home office."

Branch house repair stocks and service departments will be maintained as heretofore, it is announced.

We all may profit by this example. For while no sane person would recommend reckless and extravagant buying on declining markets, still we must realize that only by normal trading can we make work and income available for everybody.

Each of us needs something. Perhaps it is a house, perhaps a tractor, possibly only a suit of clothes. Most manufacturers are endeavoring honestly to return quickly to pre-war levels. By buying what we need now we can all help to bring about this condition more gradually and at the same time keep the wheels of industry turning.

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# GLIDDEN

## Fruit Protection

Many a fruit crop that looks promising in the spring becomes infected by pests and is ruined before harvest time. Make your crop a sure crop by spraying with GLIDDEN Dry Powdered Arsenate of Lead.

To insure your fruit crop against pests you must start spraying early. Immediately after the blossoms have fallen is the time to begin using Glidden Arsenate of Lead. It's sure death to leaf-eating insects.

Glidden Dry Powdered Arsenate of Lead is a very fine fluffy powder with wonderful suspension qualities. It can be used for dry dusting or wet spraying. It covers thoroughly and insures maximum results.

Glidden spraying materials are put up in one-pound cartons and on up to 200-pound drums. In case you cannot locate the Glidden Dealer, write to the nearest office listed below. Send for Glidden Spray Calendar.

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*Factories:* Cleveland, Chicago, San Francisco, Oakland, Reading, Baltimore, New Orleans, St. Louis, St. Paul, Brooklyn, Toronto.

*Branches:* New York, Chicago, Kansas City, Boston, Scranton, Evansville, Birmingham, Baltimore, Pittsburgh, Portland, Atlanta, Dallas, Houston, Beaumont, El Paso, Olympia, Wash., Des Moines, Memphis, Seattle, Oklahoma City, Montreal, Winnipeg. *Stocks in principal cities.*

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Tractor and Implement Paint
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JAP-A-LAC *too*

*A Complete Paint Line*—Just as Glidden Spraying Materials will save your crops so will Glidden Paints and Varnishes save your buildings and equipment. Here too you'll find a kind for every need from Glidden Endurance Paint to Glidden Jap-a-lac Household Finishes.

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# One Thousand Acres

*In Parcels to Suit*

2½ to 20 Acre Plots

$200 to $300 Per Acre

Terms—¼ Cash, Balance 4 Yearly Payments.

The Last---Yet Best---Final Chance

*Apple orchard adjoining—big dividend producer.*

The only chance to purchase ideal fruit land at prices far below actual value in Yucaipa Valley—theWonder Spot. Trust Company says: "Sell now and price so as to make quick turn-over." You get the benefit.

Act Now—Today

*This large reservoir, together with pumping plants (Mutual Water Co.), insures adequate water supply piped through property.*

Buy in a proven district possessing all the conditions necessary to promote a successful orchard. Where climate, soil, elevation, rainfall and water supply insure the successful maturing of your fruit. Where the following varieties of

| Cherries— | Peaches— | Apples— | Pears— |
|---|---|---|---|
| Black Tartar | The Hale | King David | Bartlett |
| Royal Ann | Early Rose | Winesap | Lincoln |
| Bing | Red Bird | Rome Beauty | Winter Nellis |
| | Cling | Delicious | Banjo |

thrive and produce wonder crops in the rich, warm soil of the upper bench of the Yucaipa Valley. Next door to Los Angeles and other big markets. Interplanting means early returns while trees mature.

*Write for Folder* Carlin G. Smith *Courtesy to Agents*

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# "BOB" JONES' CORNER

## Little Stories of Farming

By ROBERT E. JONES—

(To thousands of our readers "Bob" Jones needs no introduction. And it is with pride and pleasure that we announce his annexation to the staff of ORCHARD and FARM. As former editor of the Country Life Department of the Sacramento Bee, he devoted himself with conspicuous success to agricultural advancement, and through his many contributions to internationally famous magazines, he has spread the news of California's achievements throughout the world. Henceforth, as Contributing Editor for Central and Northern California, "Bob" will have a "corner" of his own in ORCHARD and FARM.—The Editor.)

**Adversity or Diversity?**—If ever there was a time when the California lure should appeal to the Eastern farmer it is in these days of adversity for the corn and wheat growers of the Middle West. What they need is to come to a State of diversity. The recent figures of the United States Department of Agriculture tell the story significantly. In 1919 California ranked sixteenth among the States of the Union in value of farm crops. In 1919 California jumped to fourth rank, passing such "old reliable" States as Kansas, Georgia, Ohio, New York, Missouri, Nebraska, Oklahoma, North Carolina, Indiana and Minnesota. California is topped for 1920 only by Texas, Illinois and Iowa. Why the vast stride? Not because California produced so much more in volume of farm products, but because California, being a State of diversity, did not suffer such a disastrous general decline in value of farm products. It is true that grain and cotton and rice went down, but tree fruits and grapes helped keep up the general average.

**The Mule Is Dead**—A recent dispatch from Alabama says that George Jackson was kicked on the head by a mule. The mule's leg was broken in two places and the animal had to be killed. Jackson was uninjured.

**Another Climate Story**—You all have heard the old "climate" story. Across the Rockies it is a popular pastime to joke about the "California climate." But here is one they can't answer. The facts are from M. S. Prescott, Editor of the Holstein Friesian World, who is an honest man and has no axe to grind. Prescott told me that: Of the pure-bred Holstein cattle in the United States only 4 per cent are domiciled on the Pacific Coast—which means in Washington, Oregon and California. Now for the finishing jolt: This 4 per cent of the pure-bred Holsteins of the United States holds 54 per cent of the world's records for milk production. What's the answer? "Climate!"

**Value of Water**—Can anyone tell the value of water to land? The estimates seem to vary greatly. Figures given out by the Government show that the Roosevelt dam of Arizona paid for itself in two years in increased value of crops. Last year the South San Joaquin Irrigation District, just south of Stockton, produced $6,177,843 worth of crops. The figure is but a shade below the assessed value of the land. The Iron Canyon project of the Sacramento Valley contemplates a cost of $133 an acre for water development. The Columbia Basin project of Eastern Washington, comprising 1,753,000 acres and with a proposed expenditure of $300,475,678, calls for $171 an acre for water development.

**True Soon to Return**—Prof. Gordon H. True, head of the Animal Husbandry Division of the University of California College of Agriculture, who has been on a leave of absence because of illness, is shortly to return to California. Friends of Professor True, and they are numbered by the hundreds, will be glad to learn that his physician has pronounced him sound. He was seriously ill when he left California for Wisconsin, his home State, but now has his old-time vigor. Professor True has rendered great service to California agriculture. He put this State, as the home of pure-bred livestock, decidedly on the map. Winnings of show stock from the University Farm at Davis while he has headed the Animal Husbandry Division have been the sensation of the Chicago International Livestock Show. A letter recently to the writer from the Professor said that while he was enjoying the tang of cold weather and his children were enthused over ice skating, the whole family would welcome the time when they would return to California.

**Mills, Berkshire President** — James Mills, the famous citrus orchardist, who developed extensive properties at Riverside and is now head of the James Mills Orchard Corporation in Glenn County, is again president of the Western American Berkshire Congress. Mills is raising pure-bred hogs in conjunction with his orcharding enterprise. He grows alfalfa and some corn between the trees.

**The Example of Tony King**—Tony King has four children and a busy young wife who always is neat and happy. Tony, who came to this country from Portugal, was in action when I drove by his place last Sunday, planting his acre farm for the summer harvest. He grew an abundance of food on that little farm last year and supplied all the neighbors with green corn. Tony gets $4.50 a day in the railroad shops at Sacramento and drives a flivver to and from work. His home is paid for and his youngsters are neatly dressed and the oldest girl is going to school. We need more Tony Kings in wasteful America.

**Prices of Pure Breds**—C. L. Hughes, manager of the California Breeders' Sales and Pedigree Company, which handles most of the pure-bred auction sales in California, has compiled some interesting figures on the last four years of business. Here are the average prices of pure-bred cattle sold at auction by the company during that period:

| | Number | Average Prices |
|---|---|---|
| Holsteins | 3065 | $383.71 |
| Jerseys | 204 | $197.77 |
| Herefords | 410 | $376.05 |
| Shorthorns | 333 | $369.56 |

**Beans Going Up**—Bean growers of the Sacramento Valley are looking forward to a better year, and plantings will be larger. The California Bean Growers' Association has word from its Eastern connections that the demand for beans is growing. The reason is this: When men get out of work they turn to cheaper foods. Beans are a substitute for meat, high in protein. When a man loses his job he turns to beans. It seems to be a rule of the world that one man's misfortune is another's gain.

**A Medal for Baade**—Somebody should design for and present to Herman J Baade, Farm Adviser of Napa County, a suitable medal. It should be a medal of honor from "The Society of Contented Farm Women," if there be such a society. Baade is directly responsible for the construction of more than 1300 septic tanks on farms in Napa county. This means that more than 1300 farm homes of Napa have kitchen sinks, bath rooms and running water, with all that this implies. Such conveniences mean more in lightening housework, and making the home comfortable than [illegible] any other type of improvement. Baade considered it his job as Farm Adviser to help make the farm more liveable, and this he certainly has done.

# For consistent, continuous, low-cost tractor performance, this quality is essential-

# DEPENDABILITY

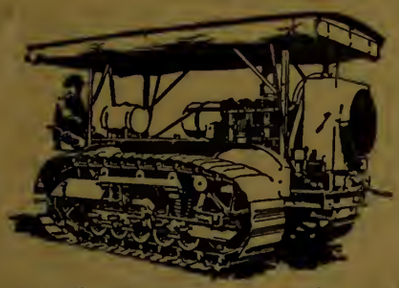
**It is the dependability of Holt construction, perhaps more than anything else, that has made the "Caterpillar" Tractor supreme in performance and in low operating and upkeep costs.**

Ask any of the thousands of "Caterpillar" Tractor users why they have made this tractor their choice. Ask the owners of fleets of "Caterpillar" Tractors why they have standardized on this machine. The answer will be—"Because the Holt product is absolutely dependable." This quality—the result of correct design, scientific choice of materials and careful, accurate workmanship—makes the "Caterpillar" Tractor able to do your work at lowest cost per horsepower-hour.

CATERPILLAR

### *The "75" —the only tractor for your big power needs*

"Caterpillar" 75 Tractor is the one and only tractor for big work—pulling a big harvester, land leveler or sub-soiler, or plowing deep—without danger of overloading, which causes 60% of all upkeep expense. The "75" stands supreme in power—the most powerful tractor on the market today. Yet, because of its economy and reliability, the operating and upkeep costs are exceptionally low—actually lower than of other tractors of considerably less horsepower. Don't underestimate your power needs; don't be handicapped with insufficient power—the "75" has ample capacity for your heaviest requirements.



### *The "45"—Famous for its compact power, versatility and economy*

"Caterpillar" 45 Tractor is small in size but big in capacity for work. It is compact, easy handling, extremely versatile. Its hinged truck—an exclusive Holt feature—gives wonderful flexibility for working over rough ground, ditches, checks and levees. Big track surface makes the ground pressure, per square inch, exceptionally low. Besides the standard model, the "45" is offered in a special orchard model that makes particular appeal to the orchardist who wants a high-powered tractor for deep tillage and quick cultivation.

### *"Caterpillar" combination disc and moldboard tractor plows*

A tractor can give no more consistent, continuous performance than the tools it handles will permit. That's why we developed a tractor-plow that will give the same trouble-free service as the "Caterpillar" Tractor, uninterrupted by annoying and costly delays. "Caterpillar" Plows, moreover, are light of draft and, because of their exclusive four-wheel construction, adaptable to widely varied conditions of soil and work. The standard frame can be equipped with discs or moldboard bottoms or heavy tractor chisel points.

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*A piano that we can recommend, at a price certain to be attractive*

SHERMAN, Clay & Co. take pleasure in calling to your attention the Aldrich piano—either upright or grand.

The Aldrich is modestly priced, but it is not a "cheap" piano.

It is made for us, in factories selected by us, and its performance in the homes of its purchasers is to us a matter of pride and interest.

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*Upright or grand; send or ask for literature*
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Red Crown gasoline has well earned the right to be called "The Gasoline of Quality."

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You can get Red Crown gasoline wherever you see the "Red Crown" sign. Look for it on garages and service stations.

STANDARD OIL COMPANY
(California)

# When We Bought Our Light and Power Plant

## Martha May's Observations on an Important Family Conference and Its Results.

"I WILL never get over the shock, but I guess it is really going to come about. Mother and I have 'sold' father on the electric lighting plant idea! (That's the way my brother Dick, who is a salesman, would put it).

"Anyway, the other night we were all sitting around the living room table in a perfectly gorgeous litter of catalogs and advertisements and circulars, telling about kilowatts, volts, amperes (I am not sure whether it is spelled with an 'f' or a 'p') and a lot of other things that don't mean anything to mother and me, when father, with a twinkle in his eye, said he supposed that as soon as we installed a lighting plant we would be darning socks, beating the eggs and even spanking the baby by electricity.

### Father Won Over

"Now if you knew father as well as I do, you would realize that that was his way of saying 'yes.' And the next morning I heard him telephoning the salesman, and, oh joy, I knew we would soon put away the old, smoky kerosene lamps and do our ironing in the modern way instead of in the hot kitchen.

"Just by listening to father's conversation with the electric light man, I have picked up some really interesting information which I have jotted down for possible benefit of other farm folks who are interested in this important subject. I was surprised to find out how little we really knew about wiring a house.

"At first we thought only of the lights, but before we had finished our planning we found that they were not everything, and that even these required special study. The man told us not to put any ceiling lights in the living room or the bedrooms, as the best architects were not using ceiling lights at all in these rooms. So we decided upon a base plug for a floor lamp and an outlet for a table lamp, with two darling electric candles on the mantle. In the bedrooms we placed the wall outlets so as to furnish light for the dresser and chiffonier, with a special outlet over the dressing table.

"It was awfully funny to hear father arguing about the bathroom light. He seemed to think that in order to shave he would have to have a regular battery of 100-candle power arc lights all around the mirror (just like a man), but the electrician finally convinced him that he needed only one good dome light in the ceiling, and now father admits that he can shave more easily than if the light were right in front of the mirror.

"In the dining room, of course, we placed an overhead fixture with base plug for emergency or for attaching the toaster we are planning to get. In the kitchen the man told us we should have an extra light over the sink in addition to the ceiling light, and it was not hard to convince mother that there should be a drop light in each closet and on the back porch.

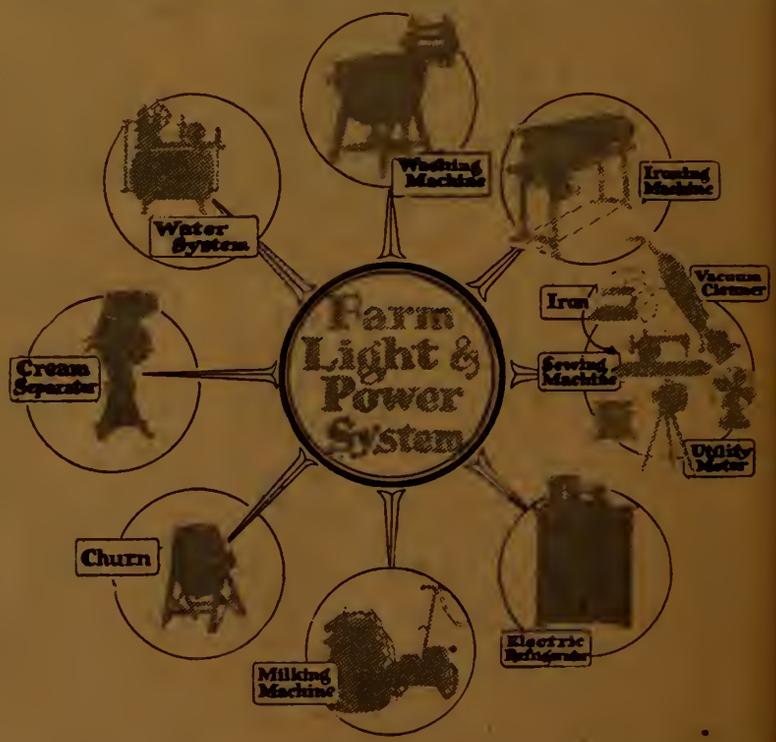
"By the time we had progressed thus far, the family had been almost disrupted by any number of high-voltage arguments, but finally we all came to the realization that none of us knew very much about the subject (father included). Therefore, we were easily persuaded to provide for possible future demands in the way of special equipment.

### Many Attachments

"'Once you have the juice in your house,' the salesman said, 'there will be no end of things you will want to buy from time to time and it is best to prepare for them now.' At this point I thought father was adamant, but I came right back at him with his old argument that anything worth doing at all was worth doing well, and of course he could not answer that, having said it so often himself, so he had to give in.

"The result is that we have a baseboard outlet near the laundry tray for the washing machine that we are going to buy with our egg money. Also there is an outlet for the electric iron over our built-in ironing board. In the kitchen over the sink we have an extra outlet because some day (he never hasten it) we may really acquire one of those electric dish-washers, and already we have picked out the dukiest little utility motor you ever saw for making ice cream and salad dressing, chopping meat, sharpening the knives, buffing silver, beating eggs and whipping cream (but not the baby).

"While our modest farm home does not boast of a breakfast nook, still on frosty mornings we often eat in the



[illegible] and so we have an extra outlet near the kitchen table for the coffee percolator or toaster. There were a lot of other things on the list that we might have provided for, but of course we had to stop somewhere, especially when we observed father figuring for the sixth time how much he would lose on the stock he was selling.

### Future Needs Considered

Seriously though, we found that the additional expense of these outlets was very small in proportion to the total cost of installing our new plant. We have put in a large enough engine and a battery with sufficient capacity (I almost feel like a regular electrician myself after that) so that future needs will be provided for.

"I will have to tell you in conclusion the argument that I used finally to win father over to the idea of doing the thing up right. I showed him how the new power plant would be as valuable to him in the farm work as to mother and me in the house. Now he has electrical connections for running the churn and separator and has his machine shed fixed up so that the drill, the grindstone and the lathe all are operated by electricity. The stable is electric lighted and there is a big arc light over the barnyard.

"Of course, I knew father would come around to my way of thinking, and now he says that the relief from worry over fires is worth all it cost to install a larger plant, not to mention the saving on insurance. No more does he have to send a careless farm hand to the hay-filled barn with a smoking lantern. We have even power enough for the milking machines that he hopes to get some day.

### A Neighbor's Experience

"That we did right in providing for all possible needs is shown by the experience of our neighbor, Mr. Jones. He changed from a small plant to a larger one and had to go to a lot of expense for rewiring and what the electrician called 'recircuiting,' whatever that is.

"Now when we can put in an automatic gas furnace and light it in the morning simply by pressing an electric button, I will have lost my last reason for envying my sister Betty, who lives in the city. She is always rubbing it in about that won-der-fu-l-l-l automatic furnace of theirs.

"I could think of a lot more things to write about electricity on the farm, only I have to go right now and shell peas for supper. (Some day maybe I can press a button and they will be in the pan cooking.)

"Yours electrically,

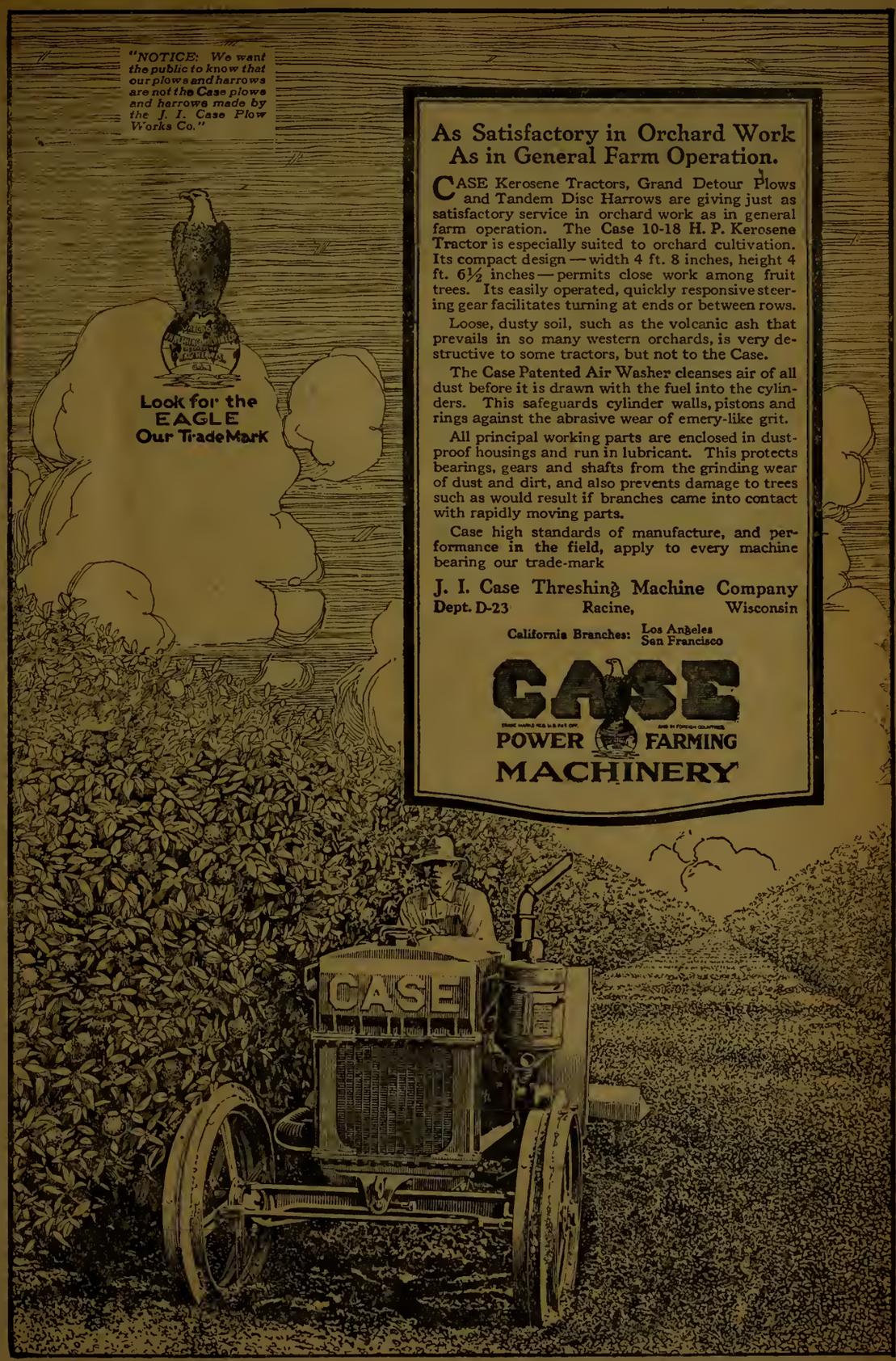
*Martha May*

## Show This to Father

SOME evening when Father has praised the apple pie, and is comfortably ensconced before the fire with his pipe, slippers and favorite paper, ask him to read what Mr. Quick says—that is, if he hasn't already reached the same conclusions himself. Seriously, isn't this more truth than fiction:

"Any farm that can afford a silo can afford a bathroom and septic-tank sewage-disposal system. Any farm that can afford a cream separator can afford a washing machine. Any farm that can support pumping and storage facilities for the livestock can afford running water, hot and cold, in the house. Any farm that can maintain a manure spreader can afford an acetylene, [illegible], blaugas or electric lighting system. Any farm that can afford self-feeders for the cattle can afford vacuum cleaners and other labor-saving devices for the women. Any farm that can justify binders, silage-cutters, hay forks, pumping engines, shredders, [illegible] delivery rakes, corn harvesters, [illegible] planters and finely equipped barns can afford every modern convenience for making the home a good place for women to work, rear children and develop [illegible] for farm life."—Herbert [illegible]

Satisfied Subscriber—I have found [illegible] and FARM very interesting and am renewing my [illegible] for another year.—Marian [illegible], Wash.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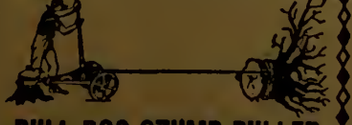

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**WRITE FOR CIRCULAR** which illustrates and describes the Sigurd Weed Cutter and contains letters from many users.

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# Don't Be Careless in Making Out Checks

By Willard G. Cram

CHECKS are more frequently used and better understood than any other form of negotiable instrument, yet the average person is both careless and ignorant in the use of this convenient aid to commerce.

A check is a bill of exchange drawn on a bank and payable on demand. Or it may be defined as an order for money drawn by one who has funds in the bank payable on demand. A check if properly drawn will not only serve as a valuable receipt for money paid, but will assist materially in keeping one's books and accounts.

Great care should be used in filling out and signing checks. One should write the amount of the check in both words and figures in such a way that the correct amount can be readily understood and the check can not be "raised." Write the amount in words in the body of the check distinctly, beginning at the extreme LEFT of the blank line used for that purpose.

If this is done it will prevent a subsequent holder from inserting a word or two before the amount and thus "raising" it. After the amount is written the blank space, if any left, on this line should be filled in with a line to prevent any words being added to the right of the amount. If one carelessly writes the word "three," intending to write the check for only $3, and leaves a space in which one may write the word "hundred," this would permit the check to be "raised" to $300.

You are in a sense responsible if you do not use due care to prevent such a fraud being accomplished. Your banker is supposed to be familiar with your signature and if he pays out your money on a forged signature he is responsible to you; but he is not expected to be familiar with the handwriting in the body of the check, as the body of check is often filled in by one person and signed by another.

The best and safest practice is to write your own checks entirely yourself and to leave no blanks to be filled in by any one else. When you start an account at a bank you are asked to write your signature in a book or on a card kept for that purpose, and you should always sign your checks in this manner only.

A woman in most cases should have her account in the form, Anna Smith (not Mrs. J. W. Smith). In other words, she should use her given name and not her husband's initials. Mrs. Smith also should never vary her name in signing a check; otherwise the bank may refuse payment and some embarrassment result. Checks may be made to "bearer," but for greater safety, and if drawn for substantial amounts, they should be drawn "to order."

### Certified Checks

If a check is certified it binds the bank as an "accepted." If you are in doubt as to the value of a check, do not accept unless it is certified by the cashier or some other proper official of a bank on which it is drawn. It is the practice of the bank immediately to charge the amount of each certified check to the account of the drawer of the check, though the check may not be presented for weeks after the date it is certified.

All checks should be presented for payment within a reasonable time after their issuance, or the drawer will be discharged from liability for any loss caused by the delay. The courts of this State have held that in the case of a check drawn upon a bank located in the same town or city and delivered by the drawer to holder in such a place, the holder need not present it on the day of delivery, but if it is presented in banking hours the next day it will be in reasonable time. Aside from binding the drawer, however, it is good business practice (and will often prevent loss) to cash checks promptly. A delay will allow many things to happen that might cause loss.

If a check is issued and lost or does not reach its proper destination, the bank on which it is drawn should be promptly notified and given a description of the check, so that the payment may be stopped and a new or duplicate check issued within a reasonable time.

In depositing checks to your account, be sure to list each check separately, indorse them, and be sure that the amounts in figures and words correspond. While in case of legal action, the words will prevail over the figures, it is better that the matter be definite. In indorsing checks write your name on the back near the top, or, if it has been previously indorsed, just under the name of the last indorser. If the check is to you and your name is misspelled, or one of your initials is written incorrectly and there is no doubt that the check is intended for you, write the name as it is actually shown in the check and your usual signature under it.

Ordinarily banks accept checks that are deposited to your account "for collection only," meaning that they do not guarantee the checks but will send them through the usual course of collection and when paid will credit you with the amount. If you deposit a check of any size that is of doubtful value you should wait a reasonable time for its collection before issuing any checks of your own against this check. If the check deposited for collection should be returned "N. S. F." (not sufficient funds) you would be in the embarrassing position of having your check drawn against the one so marked returned for a like reason.

### Concerning Overdrafts

It should not be necessary to warn against the issuing of checks when the necessary funds are not in the bank to the drawer's account, but it is happening nearly every day and causes both civil and criminal courts to give judgment against both the person who commits the offense with criminal intent and the careless person. Always draw your checks from your own check book, and if correct stubs are kept you should not be in the slightest doubt at any time as to your exact balance. Beware of the pre-

(Continued on Page 20)

### *Things to Remember About Bank Checks*

***NEVER write checks hastily. Always show exact date. Fill in the name of the person to whom the check is payable, rather than leaving blank. Make sure your checks are written so that they will be difficult to alter.***

***Use only the name you have established at your bank for signing, indorsing and depositing. Do not adopt a new or changed signature for any reason without first notifying the bank in writing.***

***Having secured a certified check against your own account, do not destroy it or change it, as it cannot be altered unless redeposited, when a new one may be drawn.***

***Make no checks payable to "Cash" except those used in drawing money over the counter at the bank. All other checks should be made to an individual or company "To order." Remember that a check "To bearer" may be cashed by any one.***

***Your carelessness in drawing a check that results in loss by fraud may make you liable for such loss.***

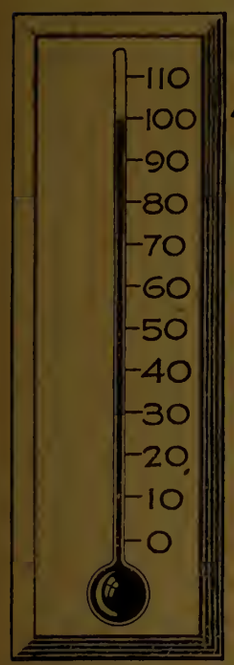
***Never overdraw your account, "swap checks" or cash checks for strangers.***

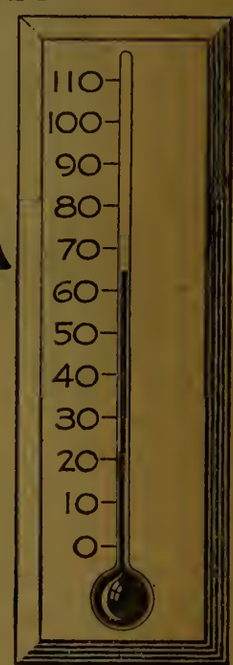
***Always write checks in ink, preferably using dark blue or black ink, and a stub or easy flowing pen, so that the paper will soak up the liquid.***

***Simple instructions, but they are ignored by hundreds of persons every day.***

# OUTSIDE the Vaporator The Thermometer stands

# INSIDE the Vaporator The Thermometer stands






## $90.00

*On those sultry summer afternoons when the temperature rises to 100 degrees, your butter and vegetables remain fresh and sweet in the Iceless Vaporator.*

*No matter how hot the day, the inside of an Iceless Vaporator is always cool. No ice to worry about. Simply place the Iceless Vaporator out in the the back yard or on the porch, and your "ice troubles" are ended. Every two or three days fill the tank with water. The water saturates the outer wall (which is virtually a stone sponge), and is evaporated. This evaporation cools the outer wall, the inner wall and the food chamber within.*

*The inside of the Iceless Vaporator is made especially to please the most critical of housewives—a sanitary surface which is easily cleaned.*

*The Iceless Vaporator will be your lifetime friend. Its first cost is its only expense.*

*Ask your dealer about the Iceless Vaporator or write us direct.*

The Iceless Vaporator stands 5 feet high. Diameter, 28 inches.

Food Chamber is 43 inches high. Diameter of Food Chamber is 24 inches (so you see what a goodly quantity of food stuffs finds place in the Iceless Vaporator).

The dimension of the door accommodates milk pans of the largest size.

The constant circulation of air is achieved by such cautious screening of openings that the Iceless Vaporator is dirt-proof and proof against ants, insects, anything that either creeps, crawls or flies.

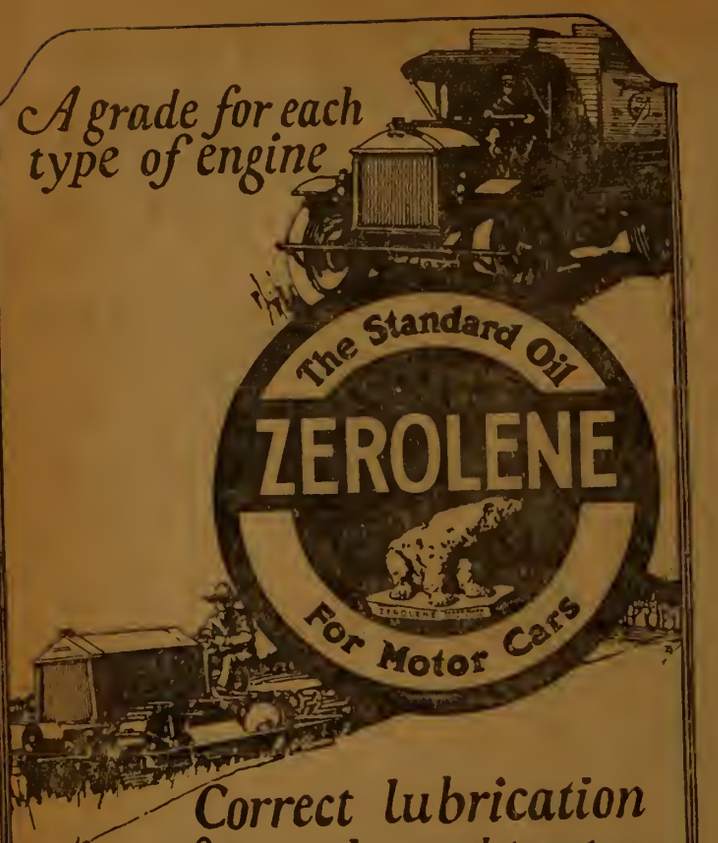
All these wise provisions are set forth in the booklet "Refrigeration Without Ice" which we shall hasten to mail you if you will send us your address.

**TO DEALERS**

**There will be one Iceless Vaporator dealer in each town. Behind him will be put a forceful advertising campaign. Write for agency.**

**995 Market Street, San Francisco**

*A grade for each type of engine*

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Correct Lubrication conserves engine power for full duty; it keeps operating parts in condition for efficient service. Thus Correct Lubrication lengthens the life of your truck or tractor engine.

Zerolene is Correct Lubrication. Our Board of Lubrication Engineers has studied each type of truck and tractor engine and recommended the correct grade of Zerolene for its lubrication.

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# Don't Be Careless in Writing Checks

(Continued from Page 18)

dated check or the man who wants "to swap checks" with you.

In the past banks were somewhat liberal in the matter of allowing overdrafts, but now the National Banks are not permitted to allow them and most State and private banks have adopted rigid rules against this evil practice. If you issue a check and it is paid when you have no money in the bank, it is paid out of the funds of the bank, to which you have no right. To make a request for a loan is proper at all times, but any attempt to arrange for an overdraft will be met with a prompt refusal.

An account may be opened at the bank for two or more persons, such as husband and wife, and if the proper form is filled out the account may be drawn against by either one or the survivor. A joint account to John A. Frank or Hattie B. Frank may be checked against by either in their lifetime and at the death of either will belong to the survivor without probate.

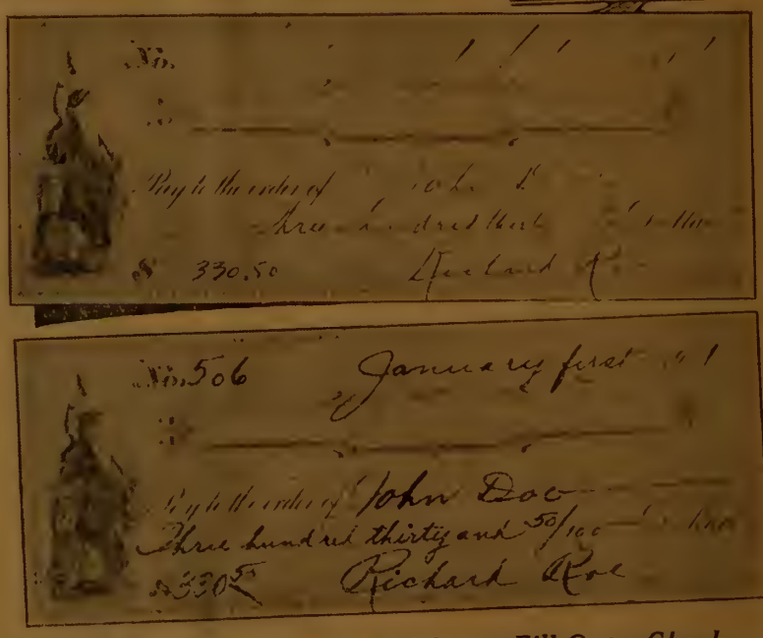
### Mechanical Protectors

A mechanical "check writer" or "check protector" may prove a good investment for the farmer with a large pay roll or for any producer who is operating on an extensive scale.

The business man who has his own printed or lithographed checks may well use the special paper which makes erasing almost impossible.

One cannot be too careful in making out and handling checks.

(All Rights Reserved by the Author)




***The Wrong and the Right Way to Fill Out a Check***

***Should an unscrupulous person secure the check shown at the top, he might easily "raise" it. By writing the word "fifty" before the word "three" and the word "two" after the word "thirty," and filling in or changing the corresponding figures below, he could collect $5332.50. The second check is properly filled out with heavy ink and is unlikely to result in loss or inconvenience to the writer.***

# The Void Between

*By Jason Wells*

EXPERIENCE spoke with the wisdom of Age, "It cannot be done, my boy."
Enthusiasm faced the Sage and cried with exuberant joy.
"It can be done! My plan is new. I ask but a chance to try."
But Experience only shook his head, and passed the incident by.

THEN Youth, undaunted, went his way fired with his glorious schemes.
While Age, with slow, indulgent smile, returned to his work and dreams.
For one saw only the distant goal, sure that his strength would last,
And the other, reminiscently, lived in the peaceful past.

ENTHUSIASM fought his way—fought with muscle and brain,
Gaining ground from day to day—oblivious of pain.
Beset by dire discouragement, he tried a different course,
For every towering obstacle, finding a new resource.

THEN suddenly, with labored breath, he stopped his headlong rush—
Held commune with his inmost soul, there in the evening hush,
And came to know that youth and strength alone would not suffice—
That he must seek Experience, and humbly ask advice.

ONE problem only need be solved. Experience could suggest—
He hurried forth, but came too late—for Age had gone to rest.

[Written for ORCHARD and FARM. Copyright, Country Life Publishing Co.]

# Cavy Breeding as a Business

THE raising of cavies (guinea pigs) is becoming more than a pastime of childhood. Many business and professional men, as well as ranchers, are embarking in the guinea pig business, according to Dr. J. A. Roberts of Hollywood (Los Angeles), who probably ranks as the leader in the guinea pig industry of California.

Investments in breeding stock of $1000 or more are not unusual, this authority asserts. Many ranchers, he says, find guinea pigs more profitable than poultry. The war gave a great impetus to guinea pig breeding because of the tremendous demand for the little animals from biological laboratories, he points out.

With the exception of sheep, monkeys and human beings, no other animal is satisfactory for the making of serums used in the practice of medicine. One large Pacific Coast laboratory buys several thousand cavies a month, while hospitals, institutions of research and college experimenters purchase great numbers, according to Dr. Roberts.

### Big Prices Paid

The price for the little animals of common breeds ranges from $1 to [illegible] a pair, while fancy stock, bred for show purposes, brings fabulous prices. [illegible] in $500 to $1000 each has been paid for highly prized individual guinea pigs.

While not so prolific as generally believed, the cavy usually has five litters a year, averaging three young to a litter. Therefore, it is estimated that anyone starting with 100 females may market $1000 to $1500 worth within a year and still retain the original number of breeding stock.

Guinea pigs are good to eat also, according to enthusiastic growers, the meat somewhat resembling in flavor and texture rabbit. They eat practically the same foods as rabbits, but by many are considered easier to care for. It is important to keep them in high [illegible] having no wire front, but [illegible] three or four inches [illegible] their crawling over and [illegible] They are cleanly little animals [illegible] free from disease if [illegible] where there is [illegible] and fresh air free [illegible] be [illegible] of rolled barley, dry alfalfa hay and succulent feed such as green forage crops or carrots or other roots. One experienced breeder is feeding dehydrated carrots with great success. (These are the second grade carrots put out by a dehydration company, which also packs a better grade for human consumption.) With the exception of a salt or tonic mixture nothing more is required, with plenty of fresh water.

Sulphur, salt and gentian are the ingredients of a tonic compound in brick form which is used widely for guinea pigs.

Of the many breeds, colors and types, the most common are the smooth English, which are found in many colors; the Agoutis, which come in cream, gray and silver gray; the Peruvians and Abyssinians. The two latter are bred as pet stock by fanciers, but are not in great demand for laboratory purposes. The Peruvians have long, silky hair, which is used extensively for the making of fur garments.

### The Rarer Breeds

The white Peruvians are highly prized as pets. The Abyssinians, while not having the long, silky hair of the Peruvians, are distinguished by peculiar divisions of the hair called "rosettes." They are found in many colors. Other classes less common are the Dutch and Himalayan.

Breed characteristics have been established by registration associations, and shows are held regularly in many centers. It is estimated that there are 2800 growers of guinea pigs in the United States, nearly 1000 of whom are in California.

### Further Information

Anyone interested in guinea pig raising can secure a very comprehensive booklet by writing to the editor of ORCHARD and FARM.

A cloth-bound book going into the subject in great detail and discussing all branches from origin to correct breeding methods, has been published and is for sale by Edwin F. Deicke, secretary of the United Cavy Breeders Association, Lombard, Ill.

At present the annual laboratory demand is said to exceed $1,000,000 worth of cavies, and some of the largest breeders who have contracts with laboratories, assert they are three months behind in their orders.

*Four Types of Cavies or Guinea Pigs*

***Upper left—Fancy specimen of the rarer Peruvian type. Upper right—A long-haired Peruvian, said to be valued at $700. Lower left—Black Abyssinian (note rosettes in fur). Lower right—Agouti, a more common variety. The short-haired breeds are used by laboratories, the long-haired kinds being bred largely by fanciers as pets. Beautiful fur garments have been made from the finer quality cavy skins.***

CALIFORNIA WONDER CORN

Last month on page 15 we showed you some highly developed California Wonder corn, also a field scene. This month we show you above an exact photo reproduction of the most famous "Mother" corn stalk in the world. This is the far-famed 5-ear "Sport" stalk from which the entire family of California Wonder Corn has been produced. (We still have this stalk.) The descendants from this one stalk have proved themselves the BEST AND MOST PRDLIFIC REPRODUCERS EVER KNDWN.

Before any seed were offered for sale ten years of selection of the best and planting only from stalks with 5 DR MDRE EARS PER STALK had brought this corn to the point where it bore from 3 to 12 ears per stalk, and best plots AVERAGED 6 EARS PER STALK.

That is the kind of corn I am selling. YDU are now offered the opportunity of sharing in the great profits that this corn is making for its growers.

To prove that it DDES exist as advertised, I offer the stalks for sale with 3, 4, 5, 6, 7, 8, 9 and 10 ears right on them. That settles the doubters. I also have ear corn and shelled corn which is shipped postpaid.

NOW is the time for YDU to make YOUR start with this most profitable of all summer crops. The profits that can be made are really wonderful and the cost of a good sized start is not expensive.

My handsome photo illustrated booklet tells all about it—shows photos of many individual stalks and field scenes and gives prices, etc. Let me send you a copy. It's FREE.

E. C. FRAZEE

CDRN SPECIALIST. SANTA RDSA, CALIF.

Coleman Quick-Lite

Lamps and Lanterns

*"The Sunshine of the Night"*

1. Make and Burn Their Own Gas From Common Motor Gasoline.
2. Give 800 Candle Power of Brilliant Pure White Light. No Glare—No Flicker.
3. More Light than 20 Old Style Oil Lamps or Lanterns.
4. Light With Common Matches—No Torch Needed.
5. No Wicks to Trim or Chimneys to Wash.
6. Can't Spill or Explode Even If Tipped Over. Can't Be Filled While Lighted.
7. Cost to Use Less Than 15 Cents a Week.
8. Solidly Built of Heavily Nickeled Brass. Will last a Life Time.
9. Lamp is Handsomely Designed -- Equipped With Universal Shade Holder.
10. Lantern has Mica Globe With Reflector--Can't Blow Out In Any Wind. Rain-proof, Bug-proof.
11. Sold by 20,000 Dealers. If yours can't supply you write nearest factory branch, Dept. OD21

The Coleman Lamp Company

Wichita St. Paul Toledo Dallas Los Angeles Atlanta Chicago

Canadian Factory: Toronto


When Answering Advertisements Be Sure and Mention Orchard and Farm.

Milking Time Tells The Health Story

How often have you wondered why—in spite of the best of feeding and general care—some certain cow kept falling far below her normal milk yield?

Nearly always such a cow is suffering from lost vitality of her milk-making organs. Get a package of Kow-Kare and follow directions. You'll see a quick return to full production, because Kow-Kare acts directly on the milking cow's producing organs.

In cases of Barrenness, Abortion, Retained Afterbirth, Scouring, Lost Appetite, Bunches, you'll find the Kow-Kare treatment a reliable aid in restoring complete health.

Sold in 70c and $1.40 packages by feed dealers, general stores and druggists.

DAIRY ASSOCIATION COMPANY
LYNDONVILLE, VT.

Send For This FREE BOOK

Germain Seed Co., Los Angeles, California

BAGS For All Purposes

New and second hand. Every bag thoroughly inspected before shipping. Bags for grain, potatoes, seed, rice, onions, beans, etc. Whether buying or selling, communicate with us.

PACIFIC BAG COMPANY
869-873 Folsom St., San Francisco.

LET your chick babies be buttermilk babies this year and watch 'em thrive and grow. Start them right, start them on Globe "A-1" Baby Chick Mash, *the buttermilk baby chick mash.*

There is a practical and scientific knowledge put into Globe "A-1" Baby Chick Mash. It isn't just a feed. It's that and more—a health protector. The generous quantity of pure, dry buttermilk which it contains gives it this invaluable property. The lactic acid content cleanses the baby chick's system, and protects it from the ravages of disease. (It has proved a preventative of white diarrhoea and coccidiosis.)

Nutritious hearts of grain, meatine, selected ground grains and plenty of pure dry buttermilk—that's Globe "A-1" Baby Chick Mash—why shouldn't the chicks grow well on it?

**AFTER THE CHICKS ARE OLDER**

After your chicks are about 6 weeks old change the ration to Globe "A-1" Growing Chick Mash (containing dry buttermilk) and when the pullets are 5 m nths old begin to feed Globe "A-1" Laying mash (containing dry buttermilk) and get ready for the full egg basket.

**GLOBE A-1 GUARANTY**

"Money's Worth or Money Back"—a guarantee as sound and as liberally made as are Globe A-1 Feeds.

If you are not pleased to have our Product, we are not pleased to have your money.

Your dealer cheerfully backs this guarantee.

**GLOBE MILLS**

Makers of Globe "A-1" Flour and all the other good things that bear the Globe "A-1" mark.

San Francisco Sacramento — Colton Ogden — Los Angeles San Diego

GLOBE "A1" Baby Chick Mash

Ask Your Dealer for

A&M reliable SEEDS

Send for Our CATALOG

Aggeler & Musser Seed Co. Los Angeles, California

WE RECEIVED THE HIGHEST AWARDS on both ELECTRIC and LAMP HEATED BROODERS. The best brooders raise the best chicks. Send for circular.
VICTOR INCUBATOR CO.,
Decota, Calif.



BUCKEYE BROODERS
CHEAPEST AND BEST METHOD FOR RAISING 500 TO 1000 CHICKS
WRITE FOR PARTICULARS
Coulsom Co.
PETALUMA CAL.


In answering advertisements please mention Orchard and Farm.

# How to Care for Growing Chicks

By F. E. La Shelle Jr.

(By arrangement with the Sperry Flour Company, ORCHARD and FARM is enabled to present a series of practical poultry hints, prepared by Mr. La Shelle especially for this magazine.—Ed.)

"NOW the worst is over," many a poultryman has thought when his brooding work was finished. True enough, the young stock is well started, but by no means are all the problems solved.

Mr. La Shelle

The foundation is laid for the "egg factories" but now you must build the walls, install the machinery and lay in supplies for the manufacture of the finished product.

It is for you to choose whether you desire a quickly constructed, cheap "factory" with weak machinery or whether you want a more expensive "factory," well constructed and equipped with machinery that will give lasting and economical service in the long run.

No matter how thorough or successful the brooding work might have been, an error or bit of carelessness in the care of the growing chicks will mean weak walls to support the machinery. Therefore, high production will mean a strain that the fowls will be unable to withstand.

First, consider the shelter. See that the growing house is well ventilated but free from drafts. Crowding prevents normal growth and "sweating" at night will cause an epidemic of colds.

## Transferring Chicks to Growing Houses

IF THE chicks are to be transferred from brooders to growing houses, make the transfer gradually, taking several days if there is a large number of chicks involved. Transfer about twenty-five at a time, for chicks are creatures of habit, and new quarters being strange will cause them to huddle together the first night like a flock of sheep. If only twenty-five are moved at a time, the first lot will not be able to crowd and smother one another, and by the second night they will have learned where to go and will teach the second lot "the ropes."

### Teaching to Roost

Teach the youngsters to roost as soon as possible. Many successful growers start instructing the chicks when they are about six to eight weeks of age. They first put the roosts on the floor so that the youngsters can walk on them. When they have become accustomed to this they gradually raise the roosts from time to time until at the required height from the floor. As with children, habits formed by chicks in early life remain in later years. Start them right.

Do not stint on yard space. Small yards mean inactivity and will result in mischief. Toe-picking and feather pulling are vices often formed in crowded quarters. Health demands exercise, and this is impossible where crowded conditions prevail.

## Preventing Disease and Disinfecting Quarters

KEEP the houses, the yards and the chicks clean. Use a good grade of disinfectant in the houses. For parasites on the birds' bodies, the United States Department of Agriculture advises the use of commercial sodium fluoride. It can be applied in the form of a dip or as a powder. The writer strongly advises its use as a powder and the dusting of all parts of the fowl's body. Use one part sodium fluoride and four parts road dust.

### For Internal Parasites

For treatment of internal parasites such as round worms, use powdered tobacco dust at the rate of two pounds to every ninety-eight pounds of the dry mash used. Feed this mash as usual, for the 2 per cent mixture of tobacco dust will not be severe enough to cause discomfort to the birds. Use the mixture for two to three weeks, as this generally will be sufficient to expell the worms. Give epsom salts at the end of the tobacco treatment as follows. One dose will be sufficient:

| Age of Chicks | Number of Birds | Amount of Salts |
|---|---|---|
| 5-10 weeks | 400 | 1 lb. to 6 qts. water |
| 10-15 weeks | 300 | 1 lb. to 6 qts. water |
| 15 weeks to 6 months | 200 | 1 lb. to 6 qts. water |

As soon as the sex of the youngsters becomes apparent separate the sexes. Subgrade these two divisions according to size.

This first grading affords the feeder an opportunity to give the pullets the proper care for future production. In the grading of the pullets and cockerels according to size, those slower to mature are given a better opportunity to obtain their share of the feed. Chickens of all ages never stand on ceremony when feed is in sight; the "best man" wins.

## Selection and Culling for Breeding or Market

PERHAPS the feeder desires to select a few cockerels for breeders. Select more than the number desired, because some might die or might not develop as expected. Choose the best developed, truest to type, most vigorous looking males and keep separate. The remainder feed for market. Feed a good pen fattening ration if crate fattening is out of the question. The breeder must use his discretion as to the time to market these youngsters, as he must consider local markets, condition of the birds and price to be received. The San Francisco market for broilers generally reaches the peak during March and April.

Remove all poor and unthrifty feeders. It does not pay to bother with birds of this type. They may be distinguished by their "crow's head," long beak and apparent inability to respond to good treatment. Birds with "wheelbarrow" wings are weak and their wings droop because they have not sufficient strength to hold them up.

If the care and management have been correct, Leghorns that do not lay at seven and one-half months should be culled out and disposed of. With normal management and feeding, the pullets that are late in beginning are the first to stop at the end of the season.

## Suggestions on Feeding for Best Results

GOOD, clean and wholesome feeds should be fed the pullets and those males kept for breeding; and rather than consider the initial cost of the feed, think of the results to be obtained. The "cheapest" feed is oft-times the most expensive.

Feed the growing pullets those feeds that go to make muscle and bone rather than fat—a growing mash—for the framework of their bodies must be of good size and muscled in proportion to the size.

As a general rule, give all the grain they can consume at night and do not entirely satisfy their appetite for grain in the morning. Give the mash dry in hoppers all day. Do not forget to feed all the green stuff the birds will eat, plenty of fresh water and a liberal supply of grit and shell.

### Management of Pullets

Feed your pullets well, but do not

(Continued on Next Page)

**Own a "Selected" Farm In WESTERN CANADA**

Come from the place where men call for land to the place where land calls for men. Along the lines of the Canadian National Railways land is selling for $20 to $50 an acre, *unsurpassed* for fertile soil and rich crops.

**"SELECTED" Farms**

Your "SELECTED" Farm will be carefully chosen from the cream of the richest wheat and cattle country in America, to meet your special needs, by experts representing 17,000 miles of railway, whose advice, free to you, is of great practical value.

**You'll Feel at Home**

Western Canada extends a helpful hand to you. Friendly neighbors with the same language and customs — splendid schools, churches and social life—warm, sunny growing summers and dry, healthful winters—law and order—efficient labor supply—await you in this wonderfully prosperous "LAST WEST."

**Profits in Wheat and Dairying**

"SELECTED" Farms along the Canadian National Railways average more than 20 bushels of wheat per acre. Under specially favorable conditions a yield of 60 to 60 bushels per acre is not uncommon. Dairying is very profitable. A world-wide market awaits all that Western Canada can produce. Stock thrive on the prairie grasses which make fine hay. Cattle and horses require only natural shelter most of the winter.

**Low Taxes**

Western Canada taxes fall lightly on the farmer. There is a small tax on the land, but buildings, improvements, animals, machinery and personal property are not taxed at all. There is no increased taxation on farm lands to meet war expenditures.

**Easy Terms**

Terms on "SELECTED" Farms: About 10 per cent cash down, balance in equal payments over a term of years; interest *usually* 6 per cent.

**Reduced Rates and Special Excursions**

Reduced railway rates will be made for land-seekers and their effects to encourage inspection of "SELECTED" Farms along the lines of the Canadian National Railways. Personally conducted excursions for this purpose also will be arranged. Full information will be sent on request. WRITE OR MAIL COUPON TODAY!

DEWITT FOSTER, Supt. Resources,
Canadian National Railways,
Dept. 2254, Marquette Bldg., Chicago
Please send me free and without obligation to me, complete information on the items concerning Western Canada checked below:
.....Opportunities for Big Profits
.....Reduced Railway Rates for Landseekers
.....Business and Industrial Opportunities
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Town ..... State .....



**Auto Owners WANTED!**

To introduce the best automobile tires in the world. Made under our new and exclusive Internal Hydraulic Expansion Process that eliminates Blow-Out—Stone-Bruise—Rim Cut and enables us to sell our tires under a

**10,000 MILE GUARANTEE**

We want an agent in every community to use and introduce these wonderful tires at our astonishingly low prices to all motor car owners.

**FREE TIRES for YOUR OWN CAR**

a representative in each community. Write for booklet fully describing this new process and explaining our amazing introductory offer to owner agents.

**Hydro-United Tire Co.**
DEPT. 151 PHILADELPHIA, PA.



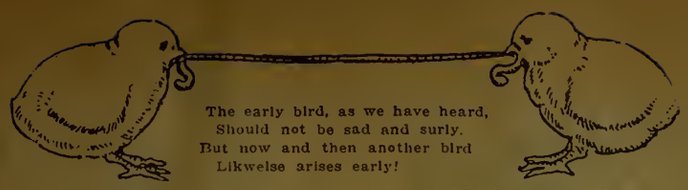
**Big Money Boring Wells**

Have water on your own farm. In spare time make wells for your neighbors. It means $1000 extra in ordinary years, double that in dry years. No risk—no experience needed.

**Outfits for Getting Water Anywhere**

Earth augers, rock drills and combined machines. Engine or horse power. *Write for catalogues and free catalog.*

MFG. COMPANY
727 Clarinda, Iowa

The early bird, as we have heard,
Should not be sad and surly.
But now and then another bird
Likwelse arises early!

## Grain Sprouter

WOULD you recommend the purchase of a grain sprouter for furnishing green feed for hens? Is it advisable to sprout barley in the winter and gyp corn during the hot weather?—Subscriber.

No doubt it would prove profitable to purchase a good oat or barley sprouter for winter use, but in summer all the necessary green feed may be grown out of doors (with proper irrigation) much more economically than it can be furnished with a sprouter.—Professor Dougherty, University of California.

## Ducks for Eggs

WOULD it pay to keep Indian Runner ducks for egg production? Is there a market for these eggs here on the coast?—Subscriber.

None of the large wholesale markets such as San Francisco offer as good a market for duck eggs as for standard hen eggs. Unless a special market for this product could be worked up, we seriously question whether a poultryman producing duck eggs could compete with the one producing hen eggs. We would not, therefore, recommend that anyone embark upon this project on a commercial scale without assurance of a market.—Professor J. H. Dougherty, University of California.

## Scaly Leg

ALTHOUGH the primary cause of scaly leg in poultry is a minute insect, nevertheless wounds and chafes give the little pest an excellent start.

Poultrymen cannot be too careful in fitting leg bands on their chickens. As a rule, the bands are put on when the fowl is about half grown and are too large for the leg. As the fowl grows the band often becomes so tight that the leg is cut or chafed; from that point scaly leg develops.

Most leg bands are made of tin; the edges are sharp and the band is non-expansive. There are on the market, however, leg bands made of pyroxylin plastic, closely resembling bone, on the spiral key-ring principle. They come in a variety of colors. The edges are rounded so that they cannot cut the leg, and the expansion feature makes chafing impossible. A metal band made on the same principle might be a trifle more expensive than the prevailing tin bands, but it would seem to be worth the difference in price to the poultryman.

## Chick Mash Box

A CARDBOARD or cigar box can be converted into a handy and sanitary mash box. Cut "U"-shaped openings in the sides and ends of the box, fill with mash and replace cover. The chicks will be able to pick out the mash but will be unable to get into the box. The idea can also be used to advantage with large stock by having boxes suitably elevated to meet requirements of the breed, thus doing away with the expense of feed hoppers.—L. Fiburg, Oakland, Cal. (H)

## Provide Mineral Food

GRIT is essential to the health of fowls, and to economy in feeding, and a box should be kept in every pen or yard. Grit takes the place of teeth in preparing the feed for further digestion, and is required for the proper preparation of food in the gizzard. When the food is improperly taken care of in this organ, an undue strain is thrown upon the fowl's system, often resulting in disease, and also allowing much of the nutriment to pass through the bird's body without being absorbed.

Investigation shows also that grit is a part of the necessary food of a flock, giving the fowls strong bones and bright plumage. If a hen is laying abundantly, as a rule, she does not consume enough lime to form the shells of eggs, unless something beside the ordinary grain feeds is accessible.

Crushed oyster shells are very good, and may be placed before the fowls for them to eat at will. Old mortar and fine gravel also are useful in supplying lime.

Charcoal is valuable, as it readily absorbs gases, impurities, and acids, and when the stomach is sour and digestion has been impaired acts as a corrective.

## Feeding Suggestions

(Continued from Page 22)

force for egg production. Forced early producers are not always the most profitable. The laying of an egg is part of the process of reproduction, and every one appreciates the folly of breeding a young animal before full growth and strength are attained.

Why is it, when this is a recognized fact with livestock breeders, that some poultrymen will persist in trying to make their pullets lay at four or four and one-half months? They cannot possibly expect the pullets to do justice either to the body needs or the eggs. Both suffer. The vitality is weakened and the eggs are small in size.

## Hints on the Care and Training of Dogs

THE following suggestions are furnished by Stanley Blake, proprietor of the famous Blue Grass Farm Kennels in Kentucky, one of the largest and most successful dog breeding and training establishments in the world:

Dogs require well-ventilated quarters and plenty of fresh water to drink at all times. Disinfect the kennels thoroughly at least once a week. Shade is essential in hot weather and a dry kennel in damp weather.

A good ration which experience has shown will keep all dogs in perfect condition is made up of cornbread and table scraps. The ideal ration is cornmeal and middlings with well cooked meat and soup, all baked together in a "pone" or thick mush.

Plenty of exercise is essential to good dog health.

To prevent fleas and as a cure for mange and all forms of skin disease, use one part creoline to 100 parts of water and dip the dog "head and all."

For distemper allow the dog his liberty and give him all the raw eggs and fresh milk he will eat. Administer castor oil twice a week.

If your dog is too free with strangers take him for a walk, asking a friend to accompany you and instructing the friend to step on the front feet of the dog every time he approaches. This soon will break him of his habit.

To cure a dog of the annoying habit of putting his front paws on those to whom he shows friendly affection, press your foot on his hind toes hard enough to cause him a little pain. If this is done each time he jumps up he will soon learn not to soil his master's clothes.

Never kick or cuff a dog about the head. It not only is likely to cause serious ailments, but also breaks the dog's spirit and may make him unruly.

Never call a dog to you and then whip him, for he will think you are punishing him for minding. The best way to punish an unruly dog (and it is sometimes very necessary) is to go to him, throwing a stick or doing something else to distract his attention, and then suddenly catch him around the nose. This will prevent his snapping or howling, and is much more effective than a cuff or kick. If further punishment is necessary, hold him in the same manner and thrash him soundly with a switch. One or two such punishments usually suffice to cure any undesirable trick.

Lord Byron placed over the grave of his dog, which he regarded as friend and companion, the following epitaph: "Near this spot are the remains of one who possessed beauty without vanity, strength without insolence, courage without ferocity, and all the virtues of man without his vices."


**PCA CHICK**

**FEEDER**

For safe and economical feeding of BUTTERMILK or other liquids or grit. MADE OF STEEL—Cannot rust—our patent enamel coating baked on at 400 degrees Fahrenheit takes care of that. PCA improved feeder opening allows constant air agitation and equal distribution. Money back if not entirely satisfied. Sold by reliable dealers. Price 25 cents postpaid. Circular free.

PCA MILLING ASS'N.
15-16 Industrial St., Los Angeles.

PCA



**SPECIAL CLEAN UP PRICES**

**FRUIT TREES**

BARTLETT PEAR,
FRENCH PRUNE and
IMPERIAL PRUNE

2 to 3 feet, 20 cents
3 to 4 feet, 35 cents
4 to 6 feet, 45 cents
6 to 8 feet, 55 cents

Surplus of Twenty Thousand Trees Special Offer 5 Cents Less in One Thousand Lots.

*Complete assortment of trees for family orchards at Seventy-five Cents each for large size, Sixty Cents for medium size.*

**Sonoma Seed & Nursery Co.**
SANTA ROSA
Sonoma County, Calif.

*Illustration shows how cattle can be transported in Reliance two-wheel Trailer — Comfortably, quickly, easily and humanely. This is only one use for this handy trailer.*

# Solves the Small Haulage Problem

## *Trailer Built for Towing Behind Your Auto*

Moving cattle is only one of the many purposes to which you can advantageously put this Reliance 2-wheel Auto Trailer. Don't make a practice of loading your automobile with produce or materials. It is not built for this purpose. A small two-wheel trailer which you can tow behind your car with ease, not only carries more and saves time, but eliminates costly auto depreciation and tire wear.

**Reliance**
**HEAVY DUTY TRAILERS**

**2-Wheel Model**

are built for the average farmer who has small lots of merchandise to haul—not enough to warrant a truck, but enough to scar and mar his auto and possibly overload it.

Various types of bodies can be easily rigged up for this trailer, each of which lift off readily, there being sockets for side stakes. Frame is built of wrought steel, hot riveted—light in weight but very strong. Wheels are equipped with Timken bearings—Reliance Trailers pull easily. Strong agile springs make easy riding and less jar on the load. Workmanship and materials absolutely guaranteed.

Reliance 2-wheel Trailers are built in capacities of 1200 lbs., 1-ton, 1½-ton and 2-ton.

Why not investigate these trailers? Write for prices and the name of our nearest dealer where Reliance Trailers can be examined.

# Reliance Trailer & Truck Co., Inc.

**1650 Howard Street - - - San Francisco**

*We also make 4-wheel Reliance Trailers for heavy hauling behind trucks. Built in several capacities and types. If interested, mention 4-wheel trailers.*

# How I Sell Breeding Stock by Mail

A SUCCESSFUL Berkshire hog breeder, who sells thousands of dollars worth of stock annually by mail, makes the following suggestions, arising from his experience:

Answer all correspondence on the day received.

Register all stock the day shipped.

Positively guarantee that every animal sold will be satisfactory upon arrival and that it may be returned at the seller's expense and purchase price refunded if not as represented.

The swine breeder should take a lesson from the mail order advertisers. It has been said that no mail order business ever survived which was conducted on any less liberal terms.

We figure on 5 per cent rejections or returns. These are unavoidable. It is good business policy to take the attitude that the buyer is always right and so treat him in all adjustments. This may result in recommendations which will develop many new customers.

Study animal conformation and excellence, and by visiting shows and mixing with other breeders, inform yourself as to the type most in demand. "Fashions" in animals change from year to year. With such knowledge, the breeder can satisfy 95 per cent of his customers with his own selections.

The great asset of any mail order business is the repeat order. Advertise to get new customers, but don't overlook the importance of holding the old ones. Make them come back year after year and send their friends.

Use the camera freely. If you have good individuals, learn how to photograph them. Study both your camera and your animals. Frequently a photograph will sell an animal when no other means will suffice, but do not make the mistake of sending out a picture that does not do the animal justice.

Another point: Study your records from month to month and from year to year so that you can determine in what months you have the heaviest demand for certain types of breeding stock, then you can plan your work and place your advertisements in order to meet the requirements of your trade.

When describing animals to a prospective customer, temper your enthusiasm so that he will be agreeably surprised rather than possibly disappointed when his order is delivered.

Use good crates for shipping. An old, dilapidated crate makes a bad impression before the animal is unloaded, and in addition is apt to cause injury and loss.

## What I Have Learned About Advertising

DON'T run advertising hit or miss. Key each ad so that you will know which paper produces results. Keep track of sales rather than inquiries. Concentrate your appropriation on the publications that give you the most actual sales. We would as soon buy hay that was full of weeds and burs as to run our advertising in hit-or-miss fashion.

## Why It Pays to Be Businesslike

BE sure that the animal is properly fed before and during transit.

If you are not positive of the correct name and address of your customer, make sure before making out the shipping bill.

Do not be afraid to use the telegraph. Many a sale has been closed by wire when competitors were waiting for answers to letters. Furthermore, a customer appreciates telegraphic advice concerning shipments and is impressed by "live-wire" business methods. Be business-like in correspondence and in all your dealings.

Adopt a pleasing name for your breeding establishment. Reflect the spirit of your farm in your letter heads, catalogs, circulars and advertisements. In short, carry on your mail order business in the most approved manner suggested by the methods used in other industries.

## Dairy Experts Announce Results of Cooling Tests

ILLUSTRATING graphically the necessity of cooling milk, the dairy division of the United States Department of Agriculture has just completed a series of experiments with the following interesting results:

Milk of ordinary quality held at 75 degrees F. (a temperature not uncommon in the summer months) soured in 36 hours. The same quality of milk held at 55 degrees remained sweet for 80 hours, and at 40 degrees for 180 hours, or practically seven days. For quick results the surface cooler offers the best means of reducing the milk temperature to 50 degrees F.

The use of the surface cooler is necessary when the time between milking and shipping is short. If milk is run over a surface cooler and then set in a tank of water cooled with ice to 40 degrees F. or less, it should be possible to cool the milk to 50 degrees within an hour after it leaves the cow. When pre-cooling with a surface device is not practiced and ice is not put into the tank before the milk, much milk reaches the shipping station in summer at so high a temperature that it sours en route.

To make sure that the milk reaches the city customer in the very best possible condition, it should not only be cooled promptly to 50 degrees or below on the farm, but also should be protected during the shipping. A can with a half-inch jacket can be shipped 26 times as far as the ordinary can before the temperature rises to 60 degrees. A one-inch jacket increases the distance to 33 times, while an insulated can may be shipped 65 times as far as the ordinary can.

## What About Dairy Culls?

WHAT to do with the dairy cull is a problem many farmers confront. There is no regular market for these dairy misfits unless there is a big local demand and butchers will buy them all. However, this seldom occurs, so he must leave them to the mercy of the local buyer, who usually gives him $10 or more per head less than might be secured.

Hog raisers throughout the San Joaquin Valley fatten their hogs in first-class shape and send them to the auction sales at their main shipping point, pooling their stock with others whose animals are of equal merit, and thus securing as much as the market will allow.

In this way a man with one hog to sell finds as ready a market as the man with a carload. This method of marketing has given excellent satisfaction and has raised the standard of the market hog to the top notch.

If it is possible thus to create a market for hogs, why could not such a market be created for dairy [illegible] It seems to be up to the dairymen to

[illegible] that which makes it [illegible] for [illegible] farmers to get rid of [illegible] stock at a reason-[illegible] Farmer.

## Successful Hog Raising System

ONE of the most successful pork producers in the West feeds his pigs entirely on alfalfa pasture, supplemented with "free-choice" self-feeders. These contain in separate compartments, grain, tankage and the following tonic mixture: Charcoal, 1 pound; sulphur, 1 pound; common salt, 2 pounds; sodium bicarbonate, 2 pounds; sodium hyposulfite, 2 pounds; sodium sulfate, 1 pound; antimony sulfide, 1 pound.

The self-feeders are on skids and are moved from time to time in order to prevent injury to the alfalfa. The feeders are enclosed so that only the pigs can get to them, the sows being hand-fed at the pens, their ration being high in bran and tankage.

Pigs rationed in this way and allowed to eat as they desired from the self-feeders have been marketed in carload lots at seven months of age, averaging 267 pounds in weight. Moreover, they are easily weaned.

In winter the fall pigs are given alfalfa hay in self-feeding racks and allowed the run of the cattle feed lots. A plentiful supply of fresh water is provided at all times, experience having shown that animals drinking large amounts of water made much greater gains.

This feeder's profits have ranged from $3 to $11 a head and his ledger has yet to come out "in the red."

## Remarkable Results

A SPLENDID record for a grade Holstein dairy herd is that recorded by the Mendocino State Hospital for one month's production of its 41 cows. An average of 48 pounds of milk per day for each cow was obtained, making a total of 61,008 pounds for the month, averaging 4 per cent butter fat or a total of 2440.32 pounds of fat for the month.

This makes an average of 59.52 pounds of fat per cow, or, in terms of butter, 71.424 pounds of butter per cow.

Of interest to the dairyman will be the ration which produced this yield. This consisted of alfalfa, corn, silage, beets, bran and soybean meal. The herd has been built up by careful selection of grade cows and the use of pure-bred sires.

## Cure for Colds

AN experienced goat raiser reports he cured a young doe apparently stricken with pleurisy or pneumonia by the following method: Four tablespoonfuls of oil of eucalyptus was added to a one-pound can of pine tar. With a small wooden paddle, about one teaspoonful of the mixture was rubbed upon the nose of the goat, as much as possible being inserted into the nostrils.

Another paddleful was forced into the mouth. This treatment repeated twice daily for three days is reported to have cured several animals in the herd.

I can live
without the
growler,
And tobacco
too, if need
be—
Walking
humbly in
the path-
way
Where the
sad reform-
ers lead me
But one vice
I won't re-
linquish,
And I surely
hope I die—
If they put
across a
law
To prohibit
hot toddies
—Justin Nutt.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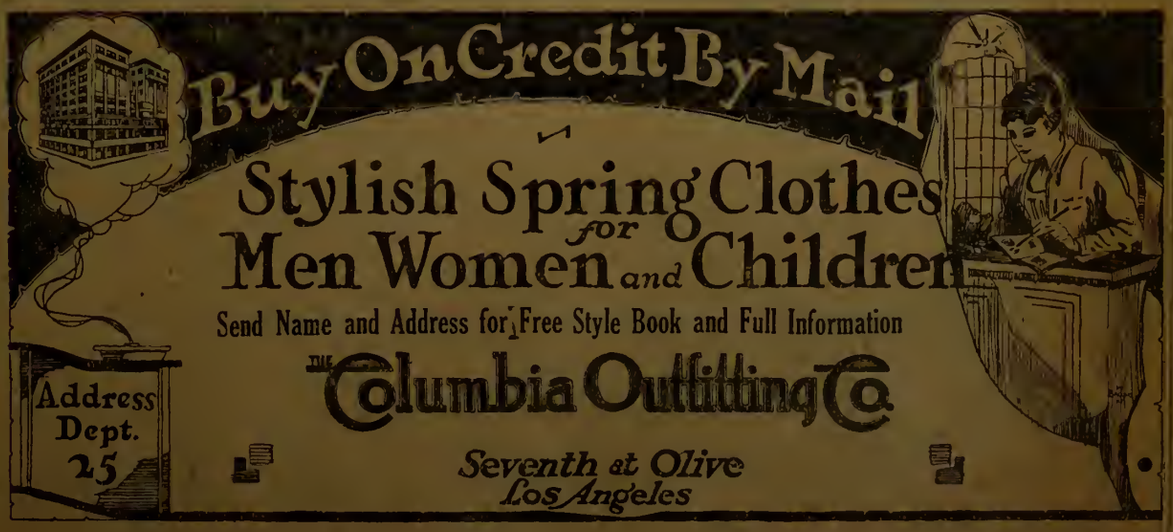

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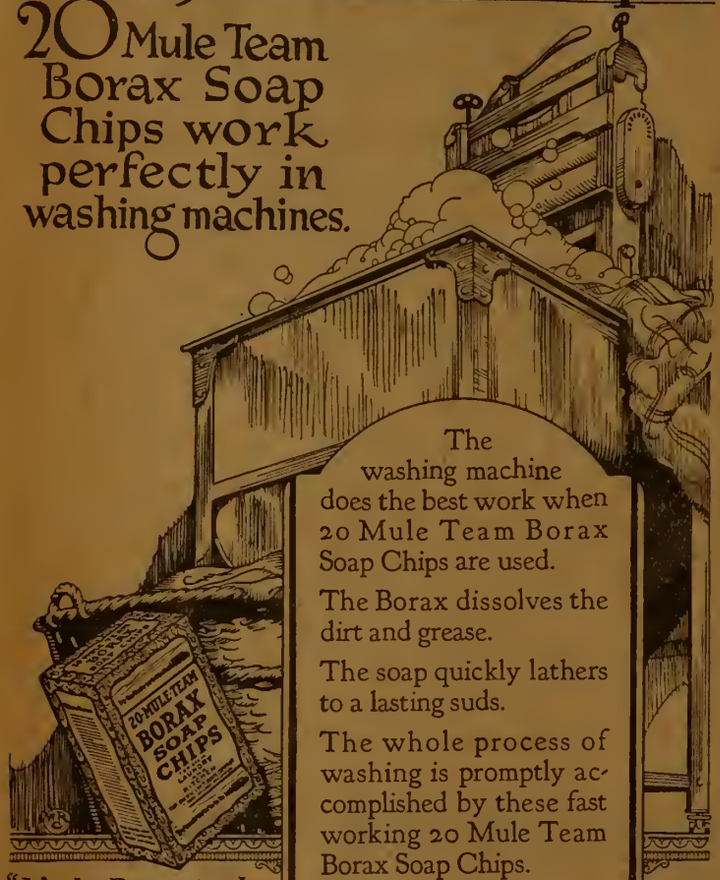


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# Fresno's Garden of Eden

(Continued from Page 8)

which was known to be underlaid with hardpan, was suitable only for grain growing. And to add to their skepticism was the general knowledge that the tract was composed principally of what is known as "hog-wallow" soil. Undaunted, however, by the caustic comment of those who did not believe in planting orchards on "red, hog-wallow hardpan," the Forkner Company went right ahead with its plans.

More than half a million pounds of blasting powder were used to break up the hardpan in planting the trees. Practically all the vast acreage had to be leveled. Water was provided, although the irrigation facilities were to be used sparingly, for the company had proceeded upon the belief that the fig tree must be watered no more than absolutely necessary during its early growth, in order to insure deep rooting and hardy development. (One experienced Fresno fig grower does not irrigate his trees at all!)

Carrying out their rigid program, the promoters of the project drew up a contract which made proper planting and careful cultivation obligatory. Either the company or the buyer could do the development work, as desired by the latter. But in either case it was required that it be done properly. Probably no great similar acreage in the State is more highly or scientifically cultivated and managed than the Forkner fig gardens.

W. M. Bacon, or as he prefers to be called, "Just Bill Bacon," is the man who keeps the wheels a'turning on the Forkner fig land. He has under his sway seventy tractors and a great force of workmen, yet in spite of the magnitude of the job he never gets excited about it.

Of special note is the plan by which the contract work is done.

Rather than attempt to own a large number of tractors the company has made deals with reliable men whom by they are allowed to buy and use their own machines and equipment.

***How "Red Hog-Wallow Hardpan" Was Conquered***

*The above illustration shows graphically the formation of the soil of the Forkner fig gardens. The white pick-marks indicate the hardpan which it was necessary to blast in order to give the tree roots a chance.*

*How the roots have sought the lower strata of soil also is clearly shown. This result has been hastened by light irrigation. The soil is not of the adobe formation, the hardpan containing so much lime (.6 per cent) that it disintegrates upon exposure to the weather. No alkali is present.*

*The soil below the hardpan is quite sandy, providing good drainage, which is essential to successful fig culture. Large amounts of iron oxide give a characteristic reddish tinge.*

*Over 500,000 pounds of blasting powder was used in planting the great area to fig trees (including new plantings, 12,000 acres).*

*The root-system illustrated is that of a 4-year-old Calimyrna tree.*

receiving a certain sum for their work which enables them to make a living and at the same time to complete the payments upon their outfits.

"The result of this plan," says Superintendent Bacon, "has been that the tractors are well taken care of and always running, the men better satisfied and the work more thoroughly done. In fact, if it is improperly done the contract men know they will have to go over the land again."

In order to make sure that the preparation of the ground, the planting and the subsequent care of the orchards would be done properly and scientifically, the Forkner Company employed early in its career Professor I. J. Condit, an acknowledged authority on fig growing. The practices that he advocated have been carried out with care.

### Unlimited Future Seen

What is the future of the Forkner idea? I put this question to one who has followed the plan from its conception. He replied by reciting briefly the story of the United Fruit Company, which started thirty-five years ago with a capital of $120,000 and now ships from its own plantations on its own ships and in its own refrigerator cars practically all of the bananas consumed in the United States. Over $100,000,000 was his estimate of the present investment of the United Fruit Company.

### Like Banana Industry?

Some have characterized the banana trade as a monopoly, yet it is pointed out that bananas are imported from the West Indies and sold on our markets today at a price per pound lower than most domestic fruits. By retaining at least the control of the domestic crop and greatly increasing the production as well as the demand, the fig growers hope to achieve a similar result.

It will be seen that the fig business is upon the threshold of a real triumph. Its adherents have passed through periods of depression, unbelief and discouragement. It seems plain, however, that their faith at last is to be well rewarded.

The promoters of the Forkner gardens, too, have had their ups and downs; and, as one member of the firm expressed it, their troubles are not yet over, but the hardest places have been conquered; the longest part of the road traversed.

And soon there will come into complete bearing in the San Joaquin Valley the world's largest fig orchard—a Twentieth Century Garden of Eden.

## Sudan Grass More Popular

According to Farmers' Bulletin No. 1126, issued for free distribution by the Office of Information, U. S. Department of Agriculture, Washington, D. C., the area which includes Southern Oregon, Central and Coastal California, Southern Arizona and Southern New Mexico, is one of the sections best adapted to the growing of Sudan grass, which is becoming constantly more popular, especially in dairy sections.

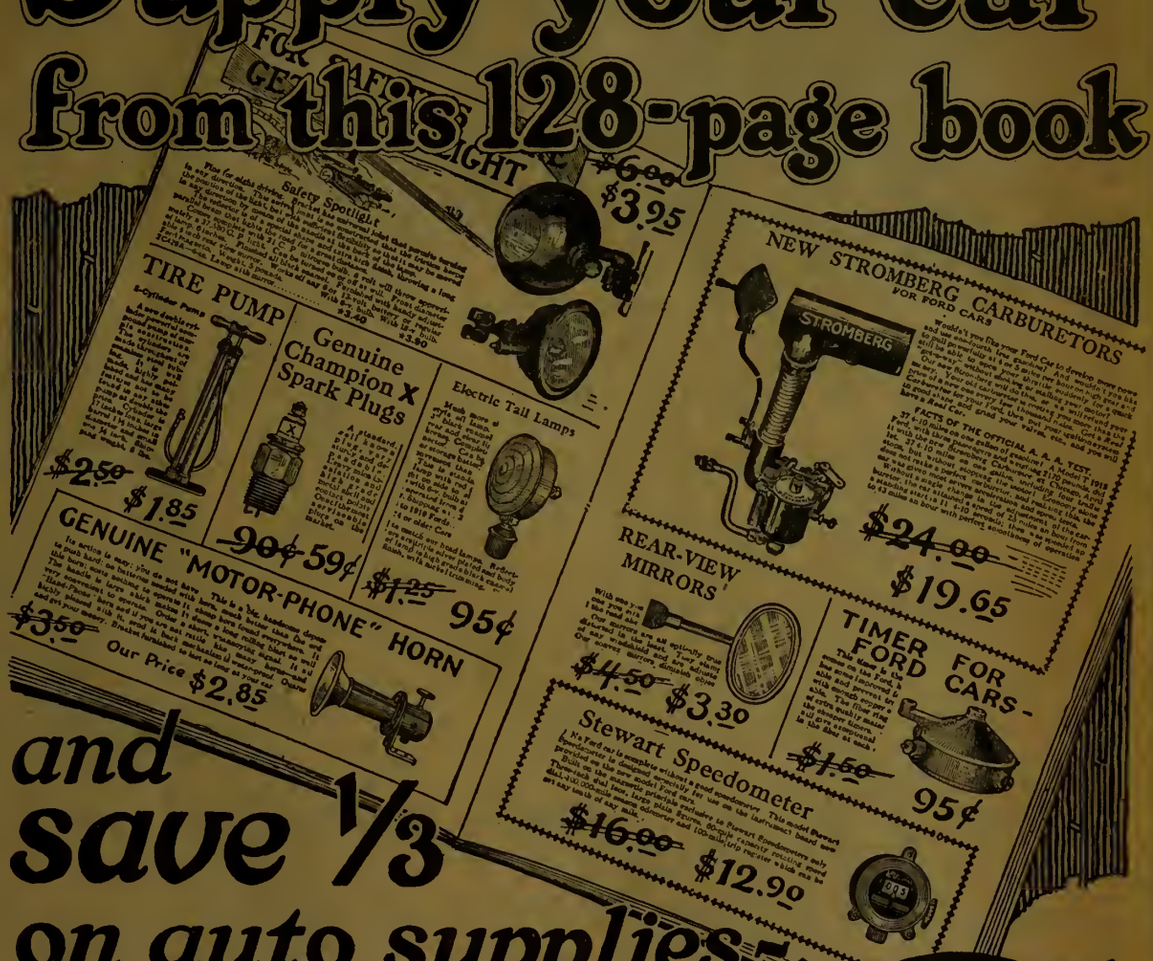
Under irrigation in California it yields up to four tons per acre and is used widely to supplement alfalfa in the rations of horses and dairy cattle. It is believed to be a preventive of digestive disturbances which sometimes are attributed to the feeding of straight alfalfa hay.

Sudan grass is not at all exacting in its soil requirements although it does best on the rich loam. Cold, wet, muggy soils are particularly unsuited to Sudan grass, and drainage must be provided.

This plant does not thrive in the presence of alkali. In California Sudan grass is gaining popularity also as a summer pasture crop. At the Yuma Experiment Station, Gait, Calif., it proved an excellent pasture for milk cows and work horses, maintaining an average of three head per acre in good condition for a period of six months.

The bulletin above mentioned is a thorough treatise on the planting, cultivation, harvesting and uses of Sudan grass, and good dairy advertising in ORCHARD and FARM also issue valuable data.


# Supply your car from this 128-page book

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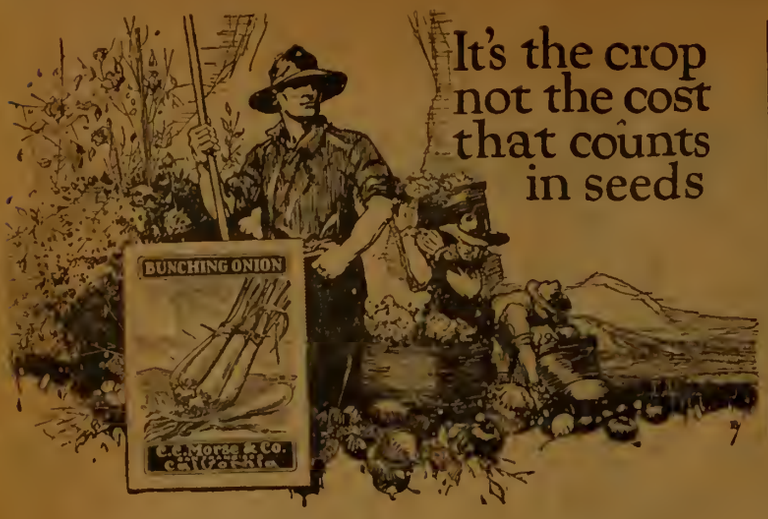


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# From Hotbed to Field

By George Gautier

[This is the fourth and last of a series of articles on plant propagation and truck gardening, written especially for ORCHARD and FARM by a practical producer.—Ed.]

THIS month is one of varied activity for the plant grower. It is a busy period of seed-sowing, weeding, spraying, transplanting, watering and disease fighting. Now, too, he enjoys that keen pleasure which comes with accomplishment for this month the seeds sown during February and March have developed into robust plants, ready for the field.

## IV Transplanting and Field Care

These plants are at a stage where the grower must watch carefully for aphis and "damping off," while giving close attention to irrigation and fertilizing. In short, every phase of hotbed culture now is clamoring for the attention of the gardener.

Novices among gardeners and truck growers usually concentrate during April upon vegetable plant purchases, and the amateur who buys his stock at the seedstores or nurseries stands comparatively little chance of losing his plants; the plant grower has taken practically all the risk.

However, there are a few fundamentals in the art of setting out plants which must be understood if losses are to be avoided. First of all, the garden or field must be well cultivated; the soil in which one intends to set the plants should be well pulverized.

### Seasonable Advice

Before taking up the plants that are to be set in the field, soak the soil thoroughly so that as much earth as possible may be taken up with the roots, and the roots come up without breaking.

Should the plants be weighted with heavy foliage it is advisable to cut off the lower branches or leaves, leaving only the upper foliage. The reason for this is obvious. In digging, the root system of the plant has been seriously damaged. It is evident that if a normal and complete root system is required to provide nourishment for a stated amount of foliage, an impaired and disrupted system of roots cannot maintain a similar amount of foliage.

It happens occasionally that plants which have remained in green-houses or hotbeds for several weeks begin to bear blossoms while still under glass. When setting such plants in the field or garden, pinch off the blossoms; their presence on the plants has no effect upon the future crop. As soon as the transplanted plant adapts itself to its new location it will grow quickly and steadily into maturity and at the proper time will put forth an abundance of fruitful blossoms.

The most essential thing to remember in connection with setting out plants in the field is to give them from two quarts to a gallon of water as soon as they have been planted. When the soil has dried so that it can be worked, cultivate around the plants. After a few days the surface of the soil will begin to dry. When this occurs, irrigate again, and as soon as soil conditions permit, cultivate again. In a few days it will be seen that the plants are sending forth new shoots as well as leaves—an unmistakable sign that they are growing anew.

Further irrigation is not required for a period of two or three weeks and then only when the soil appears dry at a depth of several inches. Thenceforth irrigate only when the plants show need of water. After each irrigation make it a point to cultivate well and to keep weeds down.

### What to Plant Now

In April plant seed for such field crops as tomatoes, peppers and chili to mature in summer for the canneries. Peppers and chili as yet may need the protection of glass, but tomato seed may be planted in open plots with economy as well as success.

In May seed will germinate and grow quickly without the aid of hotbeds. As soon as the hotbed is dispensed with it is advisable to repair and repaint the sashes and frames so that they may be stored away for the next season. At the end of the season dig the manure out of the beds and use it in the garden. It will prove valuable fertilizer.

## Garden Tips

The garden should not be shaded by buildings or trees.

Group vegetables according to cultural requirements, time of planting and maturing.

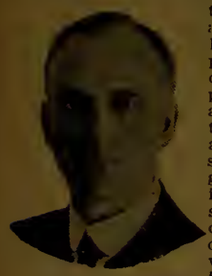
Before planting, make a definite plan showing location and amount of land to be occupied by each crop.

Well-rotted manure at the rate of 20 tons per acre should be spread upon the land before plowing or spading.

The size of the garden, size and individual tastes of the family, labor and moisture and climatic conditions should govern the choice of crops.—C. L. S.

# The Home Food Garden in April

APRIL is the best garden month. The soil can be prepared better at this time than earlier, as the rains have helped to decompose the manure or green crops previously plowed and harrowed into the soil. There is a great deal of satisfaction in growing a garden in well fertilized soil, but is discouraging, on the other hand, to work in soil lacking organic matter.



Chas. L. Schufeldt

It is well to hurry the planting of berries if a crop is desired this summer. One of the most important factors to remember in growing strawberries is to have the soil well supplied with organic matter, making possible the maintenance of a constant moisture supply. It is a good plan not only to plow down stable manure before the plants are set out, but also to cultivate it into the soil between the rows each spring.

Filling the trenches between the rows of berries, currants and guavas with bean or other straw or compost will hold the moisture and less cultivation will be required, although weeds must be removed.

### Northern and Central Sections

In most sections of Northern and Central California the cool nights continue longer than in the Southern section of the State, although some interior valleys in the South may be classed with the former. Beets, carrots, onions, celery, chicory, early hardy corn, cress, kale, chard, kohlrabi, California butter lettuce, Chinese mustard, parsnips and potatoes may be planted, omitting cabbage, peas, endive Los Angeles lettuce and spinach, unless they can be planted very early. This is true of all sections except those where the climate is moderated by ocean breezes. These crops may be planted in July, August or September if a fall harvest is desired.

Bush squash such as Italian and crookneck, radishes, salsify and turnips may be planted. In seed beds plant seeds of eggplant, peppers and tomatoes, as well as old sweet potatoes for plants to be transplanted in May.

### Southern California

In general, what has been said about other sections applies to Southern California. In the late spring or early summer period may be planted beans, corn, tomatoes, squash, watermelons, muskmelons, cucumbers, eggplant, peppers and even okra and roselle.

### Some Helpful Pointers

An important thing to keep in mind is that sandy or loam soils with southern slope are warmer than heavier soils sloping in other directions. Imperial Valley gardeners select warm soils for early cantaloupes. However, they make use of waxed or oiled paper covers for the plants until well started. In most sections of the Southwest all precautions against frost now may be disregarded.

Do not plant seeds as deep at this time as in May and June and avoid planting when the soil is wet. Care should be taken not to irrigate toward evening when the nights are cold. It is best to irrigate in the morning in the spring and fall, but reverse the schedule in the summer and irrigate in the evening.—Charles L. Schufeldt.

## Pointers on Rhubarb Culture

THE best way to start a new planting of rhubarb is to purchase from a grower roots from selected plants. Rhubarb roots are on the market now. The best plants may be obtained in April, May and June, preferably May. The soil is spaded or plowed away from old roots of proven productivity, and the side roots or root shoots with crown buds are cut off.

### Preparing the Soil

Anyone contemplating planting an acreage of rhubarb this spring should spend considerable time preparing the soil. A deep, very rich and well drained soil is essential. Plowing should be deep and it is well to do the work in the fall before planting in order to secure the full benefit from the winter rains. Subsoiling helps. Chanches for success are increased if green cover crops or fresh cow manure are turned down deep. From 20 to 30 tons of fresh manure per acre is not too much. This manure will have become partly incorporated in the soil by May or June, when the plants are set.

### Time to Set Out

There are two main types of rhubarb, the winter growing kind and the summer variety. If the soil is ready, the summer growing kind can be set out in February or March and the winter growing variety in June, although August is not too late. However, in home gardens the plants may be set out almost any time of the year and success attained if the proper care is given. It is well, also, to grow plants from seed planted in March or April in the open ground, much as cabbage plants are grown, transplanting in May or June about 4 inches apart in the row. The roots will be strong enough to set permanently the following spring, when they should be spaced at a distance of 16 to 20 inches, in rows 4 feet apart. Let the plants remain in the rows, which will cause the stems to grow longer and the roots to overlap, forming the necessary shade.

### Let Leaves Remain

[illegible] kind will do better if set 12 to 18 inches apart in rich soil. Do not set roots in very wet soil, as they rot easily. The plants should be allowed to retain all their leaves the first season unless the growth is large, when they may be thinned, but bear in mind that there must be big root growth the first year and this cannot be attained if leaf surface is reduced.

Winter-growing varieties set in May will permit some picking about Christmas. Always give the plants adequate irrigation but do not flood.

When grown from seed there will always be a few plants in each row that will prove untrue to type and produce unsatisfactorily, making it necessary to replace with better plants.

### Fertilizing Important

One successful California grower and originator of the giant winter variety, advises the use each year of a fertilizer rich in nitrogen to secure big, rapid-growing plants. A Covina grower uses from 200 to 400 pounds of nitrate of soda as well as manure. It is generally agreed, however, that fresh cow manure, plowed down deep each year, is the best fertilizer for rhubarb.—Chas. L. Schufeldt.

## Home-Made Oiled Caps

A SURPRISINGLY big gain can be made in early planting by using waxed or oiled paper covers for the tender plants set out early. These either may be purchased from seed houses or made at home as follows: Save the old oil drained from the crank case of the automobile or tractor and and enough coal oil to thin. Dip newspapers into this oil and allow to dry. Stick a small stake about six inches high into the center of each hill or by the side of each plant. Over this stake place a sheet of the oiled paper, hoeing dirt or lumps onto the edges to hold in place. The oil toughens the paper and makes it transparent, as well as waterproof. The caps should be placed over the plants as soon as they are set out or the seed planted.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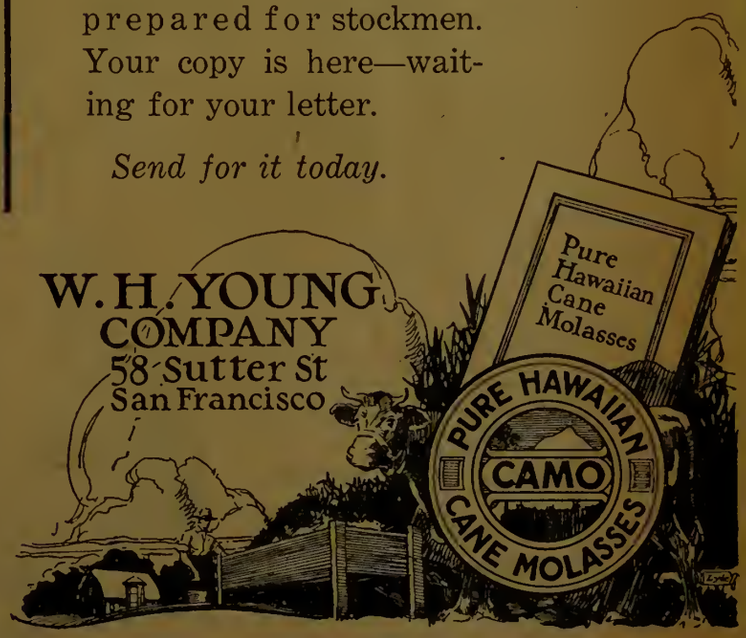


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CULTURE—Sudan Grass is strictly an annual. It may be drilled or broadcasted. If drilled 8 to 12 lbs. per acre is ample; for broadcasting 15 to 25 pounds should be used. It grows 8 to 10 feet high, and yields from 3 to 8 tons per acre. You are sure of two cuttings, and if irrigated three or four cuttings.

SUDAN GRASS FOR PASTURE—During the months of August, September and October all other grasses are dry, then is the time Sudan is most valuable for fall pasture, and by having it fenced in small fields it will yield food for six times as much stock as any other forage will without irrigation. For milk cows and hogs, there is no better and more abundant pasture than Sudan Grass. It will solve the hay proposition as nothing else can or will do in this climate. A good silage and balanced ration. This seed was grown on our own farm, and is free from Johnson Grass.

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*by Helen Temple*

My garden, fresh and beautiful.
The spell of frost is o'er,
And earth sends out its various leaves,
A rich and lavish store.
—CAROLINA GILMAN

**Crysanthemum Growing Part II**

THE crown buds of the chrysanthemum are those appearing first at the top of the plant. These are followed by many little flowering branches about the stem bearing the crown bud, each of which has a central bud with several tiny buds clustered about it. When several blooms are desired remove the crown bud and the tiny buds clustered about the central ones, leaving on the plant six or seven of the best central buds.

Two weeks later repeat the operation, removing all but two or three of the strongest central buds.

When but one bloom is desired on each stem the crown bud and all other blooms or buds should be removed upon their first appearance, leaving the bud just below the crown. By the removal of these as soon as they make their appearance the one remaining bud will receive all of the strength imparted to the stem upon which it grows.

### Exhibition Blooms

Exhibition blooms are obtained by allowing but one shoot to develop, and when it buds removing the first and using the second bud. No side shoots are allowed to grow. Raising exhibition blooms is a task only for those who can devote considerable time to the work. I would advise anyone contemplating this to consult a florist in regard to varieties best suited for the purpose. The stem of the exhibition bloom must be carefully tied to an individual stake of smooth, planed redwood or bamboo.

When the first bud appears at the top of the plant discontinue all solid fertilizers, using only liquid manure, and as soon as it begins to show color, discontinue the fertilizer altogether. But be sure to water freely. If the fertilizer is continued the stems, flowers and leaves become rather "soggy" or soft and do not keep well. The earlier varieties begin to bud around the first of August and the selection of buds should be made after the tenth of August and until the first week in October, according to the variety.

In the interior chrysanthemums should be provided with shade or protection as soon as the first buds appear, and where there are early October rains provision should be made for protection of the blooms. After the blooming season is over cut back to the ground and mulch. If the space they occupy is needed for something else lift them out and "heel in" in some out-of-the-way place.

### Enemies of the Chrysanthemum

If the chrysanthemum is kept in a vigorous growing condition it is seldom bothered with enemies of any kind, although sometimes aphis and green beetle attack the young plants. The plants then should be syringed with tobacco solution. Slugs that eat the foliage easily can be checked by sprinkling air-slaked lime on the soil about the plants.

Soil containing a great deal of vegetable matter often houses a white grub which eats the root of the plants. Either a new location should be resorted to or the plants "heeled in" in another spot. Thoroughly spade up the old beds and leave exposed to the air and sun for a few weeks, then turn the soil over again and work in some air-slaked lime.

## Two Gardens of Flowers

WE VISITED two gardens a few days ago. Both of them were perfect as well as beautiful, yet very different. The first garden belonged to one of the most famous florists in the world, Mrs. Myrtle Shepherd Francis of Ventura, and the second garden was Mother Nature's, situated in the Sespe Canyon, Ventura County.

Mrs. Francis' garden is one of the beauty spots of Southern California and hundreds of people have traveled to the quiet little town of Ventura to visit it. Mrs. Shepherd began the work in 1880, and it grew more and more successful as the years went by. She left her work to her daughter, Mrs. Francis, who in turn has created new flowers to add to those of her mother's and has worked for years to secure perfection in certain types.

One of her greatest accomplishments is the double seeding petunias, for which she is famed throughout the floral world. To see this wonderful garden, with its rare plants and flowers is to realize that great progress has been accomplished in the floral world.

### The Other Beauty Spot

Mother Nature's garden in the Sespe Canyon also is perfect. Wild lilac, wild gooseberries, poppies, wild sweet peas, wild currants, buttercups, lupines, harbells and many other of our wild flower family were in bloom and the roadside was bordered with ferns of all descriptions.

We had failed in a successful rockery, but Mother Nature had so many varieties of fern rockeries as examples that we feel sure our next attempt will prove successful. In many of the rock crevices, filled with leaf mold and crumbly rock, grew beautiful ferns and we noticed that Mother Nature had planted her ferns where they were afforded ample protection from the hot sun and wind. Trees, wild shrubs or overhanging and projecting rocks also protected them. A wall or some other protection should be provided for outdoor ferneries if they are to prove successful.


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## Redwood Manufacturers Company

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## Alfalfa Varieties

(Continued from Page 6)

but have not proven sufficiently valuable to become established. One of these is the Arabian, which was introduced some years ago. In its habit of growth it resembled the Peruvian type and was adapted to the same conditions, but it was short lived, seldom lasting more than four years, a fact which militated against its use. It grew rapidly and yielded well, and would doubtless be valuable in short rotation, but as yet rotation plays but a small part in California alfalfa growing.

### The Turkestan

Another variety, the Turkestan, was recommended a few years ago as being drouth-tolerant, and well suited to dry, unirrigated sections. Experience, however, has shown that if the conditions were too dry for our common alfalfa, the chances were extremely small of securing anything worth while with Turkestan. As a consequence, it has practically ceased to be grown.

In conclusion it may be said that we are often asked to recommend varieties for moist land with a high water table, or some other condition in which the usual types are not adapted. While it is possible that a variety exists which would do well under some of these conditions, our knowledge of this subject is yet exceedingly limited. It is a phase of alfalfa culture upon which information is much needed and it is to be hoped that in the near future some one will have the opportunity to attack this problem satisfactorily.

### CAN YOU DISTINGUISH HAIRY PERUVIAN FROM COMMON ALFALFA?

**MANY alfalfa growers believe they would have no difficulty in naming correctly single plants of different varieties. Hundreds of tests have shown, however, that the only certain way to distinguish the Hairy Peruvian from the common, is by observing the plants in the field.**

**The principal difference between the plants of the Hairy Peruvian and the common alfalfa is that the stems of the former are coarser, and both stems and hairy nature of the plants give a field of Peruvian a silvery or blue appearance, as compared with the lighter green color of the common.**

**This appearance of the field, together with the more rapid winter and early spring growth, are the easiest means of identifying the Peruvian.**

**The hairy covering of the plants varies somewhat with the conditions of growth. Where the stand is good, the moisture supply abundant, and the growth vigorous, the plants of the Peruvian alfalfa will be less hairy than when the stand is thin and the growth stunted by a shortage of water.**

**It should be pointed out, however, that the leaves particularly of the common alfalfa also are hairy, but the hairs are usually shorter or less conspicuous, and do not impart to a field the same silvery appearance. They are abundant enough, however, to make it extremely difficult, and sometimes impossible to distinguish individual plants of the two types.**

**It is even more difficult (if not impossible) to distinguish the seeds of the two varieties. Fortunately, however, the grower may depend upon the seed furnished by reliable dealers to come true to type. Hairy Peruvian seed, certified and tested, now is obtainable in any quantity from reputable seedsmen, such as those advertising in ORCHARD and FARM.**


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LOS ANGELES

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I want every sufferer from any form of muscular and sub-acute (swelling at the joints) rheumatism, to try the great value of my improved "Home Treatment" for its remarkable healing power. Don't send a cent; simply mail your name and address, and I will send it free to try. After you have used it, and it has proven itself to be that long-looked-for means of getting rid of such forms of rheumatism, you may send the price of it, One Dollar, but understand I do not want your money unless you are perfectly satisfied to send it. Isn't that fair? Why suffer any longer, when relief is thus offered you free? Don't delay. Write today.

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# HELPFUL HINTS for THE HOUSEWIFE

Edited by Isabel Sinclair

The Home is the Hub of the Universe

### THE NEW COMPANION

He's the best "company"—and the most dear—
No day is lonely now that he's near.
Once endless hours pass swiftly away;
Work that was irksome seems nothing but play.
No greater love than this could I demand—
No sweeter joy than the touch of his hand.
Still, he can't walk! (This seems strange to you, maybe)—
Nor yet speak a word—for he's just a wee baby.

—AMY ELIZABETH HARPER.

(Written for ORCHARD and FARM. Copyright.)

DEAR FRIENDS:—The real beginning comes with April. The warm, spring-like days and the fragrant air laden with the breath of orchards with their canopies of sweet blossoms, arouse in each of us the desire to be out of doors. It is a time for beautifying the garden spot, lawn and house lot.

In order to unite the many parts of a farmstead into a pleasing, homclike whole, suitable plantings are necessary. Trees play a most important part in their use as windbreaks and as frames or backgrounds for buildings, as well as to fulfill their age-old mission of giving shade.

How much I might say as to the importance of planting shrubs in abundance! They may be used to hide the foundation lines of buildings, or to support their corners and give an appropriate and fitting reason for turns in drives or walks and to screen unsightly objects.

It is best to select those trees and shrubs which are native and known by trial to thrive in the particular locality where they are to be used. With a pencil and paper one may make a rough sketch of the grounds, indicating the house and outbuildings and then arranging groups of shrubs or trees to produce the best effects.

How important it is to make the farm home a place of beauty, not only as to the interior, but also the exterior. "Pride of possession" is a term well used when it can be applied to a home that shows thoughful care and planning for beauty and liveableness. It will command the respect and admiration of all who pass.

Sincerely,

Isabel Sinclair

## Salads and Salad Dressing

By Mrs. Belle De Graf

Director, Domestic Science Department, Sperry Flour Company.

*Written Especially for Orchard and Farm*

THERE are few more palatable dishes than a savory salad. While the food value of green salads is not high, the salts they contain, and the oil, cream and eggs used in the various dressings, are valuable and nutritious.

Mrs. Belle De Graf

There are certain essential rules governing a good salad. First, the ingredients should be cold, and if a green salad, they must be crisp. Second, the dressing must be proportioned and blended carefully so that the salad will be neither oily nor acid, and the whole well mixed.

When using French dressing only enough to sufficiently cover the vegetables is necessary, and the ingredients should be perfectly dry, otherwise the dressing will not adhere to the vegetables, remaining in the bowl. If green salad vegetables are wilted, cover with cold water until crisp and fresh. When ready for use drain, place in a cloth or cheese-cloth bag, kept for that purpose, and toss lightly to dry. A slice of lemon added to the water in which celery or lettuce is standing will make them crisp and white. Cucumbers should stand in cold, unsalted water. Salt water toughens them, increasing their indigestibility.

A green salad should not be mixed with dressing until ready to serve, as the dressing will wilt the vegetables. On the other hand, in the case of cooked vegetables, their flavor will be improved greatly if the dressing is added an hour or two before serving. Meat and poultry should be freed from skin and gristle, and cut in small cubes, not chopped or put through a food chopper. Remove all skin and bones from fish, flaking the flesh with a fork.

Fruit salads are popular and offer a means of serving a mixture with a maximum of benefit to the system. Use only firm fruit in perfect condition.

Many housewives make but one or two kinds of salad dressing, not realizing that mayonnaise or a cooked dressing is too heavy for the delicate green salad plants, and too rich to accompany a meat course. French dressing should be used for a dinner salad, while the richer dressings may accompany luncheon or supper salads, as usually they form the main dish of the meal.

To make a perfect French dressing, a good grade of olive oil is necessary, although any of the vegetable oils will produce a satisfactory mayonnaise. A satisfactory way to mix French dressing is to place the ingredients in a glass fruit jar, shaking it until they have been blended perfectly and somewhat thickened. Mayonnaise is not difficult to prepare if all of the ingredients are of the same temperature. If the oil is cold and the acid and egg warm, it will be difficult to thicken the mixture. Haste in mixing also causes failure. One egg yolk will absorb only about one-half pint of oil without curdling or separating. When well made, mayonnaise dressing is thick, smooth and glossy. It will keep for some time if carefully covered and kept in a cool place. Cooked dressing also keeps well and may be used in place of mayonnaise.

### The Following Are Tested Recipes

#### MAYONNAISE DRESSING

1 egg yolk
½ teaspoon salt
¼ teaspoon white pepper or paprika
½ teaspoon dry mustard
2 tablespoons vinegar or lemon juice
1 cup of oil
2 tablespoons hot water

Beat the yolk of egg, add seasoning, beat again, then add vinegar or lemon juice. Beat well and add oil as directed. Finish with boiling water, beating in the same manner as the oil. The boiling water also assists in preventing curdling when the dressing is not to be used at once. Mustard may be omitted if desired.

#### THOUSAND ISLAND DRESSING

½ cup mayonnaise
1 teaspoon pimentos, chopped fine
1 teaspoon tarragon vinegar
¼ cup chili sauce
1 teaspoon green peppers, chopped fine
½ teaspoon paprika
¼ teaspoon salt
½ cup olive oil

To the mayonnaise dressing and above add an extra half cup of oil, then the chili sauce, seasonings, vinegar and fine-chopped vegetables.

#### SAUCE TARTARE

To ½ cup mayonnaise sauce, made with mustard and a few drops of lemon juice, add 1 tablespoon each finely chopped capers, olives and cucumber pickles and 1 teaspoon finely chopped parsley. This dressing is used for salad, cold meats, fish, oysters, etc.

#### BANANA SALAD

Cut each banana into 5 or 6 lengthwise strips. Place on crisp lettuce leaves. Sprinkle with finely diced celery hearts, cover with mayonnaise and sprinkle with chopped walnuts. An excellent luncheon salad or to use when the meat course for dinner is scanty.

#### MACARONI SALAD

2 cups cooked macaroni
1 pimento, chopped
½ cup minced boiled ham
¼ cup minced olives
½ cup grated cheese

Mix with either French or mayonnaise. A supper or luncheon salad used for the main dish.

#### TOMATO JELLY SALAD

1 cup strained tomato or tomato sauce
1 cup hot water or strained soup stock.
1 boullion cube
Bit of bay leaf
½ teaspoon salt
1 onion, grated
2 tablespoons gelatine
½ cup cold water

Soak gelatine in cold water. Heat tomato sauce, add stock and seasoning. When hot add gelatine, remove from fire, stir well to dissolve gelatine, then strain into a wet mold. Set aside to become firm. To serve, turn out, surround with asparagus tips and garnish with mayonnaise.

#### VINAIGRETTE DRESSING

½ cup French dressing
2 capers, chopped
1 small sour pickle, chopped
¼ teaspoon parsley, chopped
Few drops onion juice
½ teaspoon green pepper, chopped

This sauce is used on asparagus, stuffed tomatoes or fish salad.

#### CREAM DRESSING

Add whipped cream to mayonnaise, folding in about one-half cup of whipped cream to each cup of dressing.

#### RICH LOUIS DRESSING

½ cup mayonnaise
½ cup chili sauce
½ cup whipped cream

Mix mayonnaise and chili sauce, then fold in the whipped cream. Particularly suited for fish cocktails.

#### FRENCH DRESSING

½ teaspoon salt
¼ teaspoon pepper
2 tablespoons vinegar
¼ cup olive oil

Mix as directed. A few drops of onion juice may be added.

#### ROQUEFORT DRESSING

½ cup French dressing
¼ teaspoon paprika
2 tablespoons mashed Roquefort cheese

This dressing is suitable for all green salads.

#### COOKED DRESSING

To make the creamy boiled dressing put 1 teaspoonful of flour into a saucepan, add 1 teaspoonful of sugar, 1 teaspoonful of salt, a pinch of mustard, a pinch of paprika, ¼ cupful of vinegar and 1 well-beaten egg. Stir and cook slowly until the mixture begins to thicken. Then remove from the stove and add 1 heaping teaspoonful of butter.

#### PINEAPPLE SALAD DRESSING

2 tablespoons butter
2 tablespoons flour
2 tablespoons sugar
½ teaspoon salt
¼ teaspoon mustard
1 cup pineapple juice
½ lemon, juice
2 eggs

Heat all over hot water, beat eggs, pour hot mixture over them and cook over hot water until thick, stirring constantly. When cold add ½ cup whipped cream. An unusual dressing for special occasions.

## Spanish Codfish

PLACE one pound of codfish in cold water, bringing gradually to the boiling point. Drain and break into three or four pieces, removing bones. Put four tablespoons of olive oil, or salad oil, into a kettle (preferably aluminum) and when hot add the codfish, clove of garlic and a finely cut onion.

Stir carefully for a few moments, then add one chopped chili pepper with seeds removed, pulp of six chili peppers, which have been previously boiled, a few whole black peppers, cummin seeds, cup of strained tomatoes and enough water to cover. Boil slowly until tender. As a rule, no salt is needed, the codfish being sufficiently salty.—Mrs. George A. Enos, Salinas, Cal. (H.)

## Meat Preservative

A LARGE quantity of beef may be kept almost indefinitely by the following method: Slice and put it into jars, covering each layer of meat with a sprinkling of a mixture made with one cup of granulated sugar, 1½ cups salt and a rounding teaspoonful of salt petre (mix dry). When the jar is full cover with a cloth and lid. The roasts and boiling cuts may be kept in the same manner except that water and more salt should be added.—Mrs. Donald J. Dunkin, Wolcott, Ind. (H)

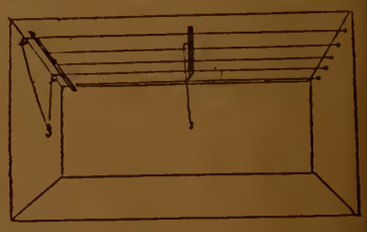
**Likes Orchard and Farm**—"I secured a copy of Orchard and Farm from our library. I like it very much, and want to subscribe."—Mrs. O. Croghan, Orland, Calif.

## Dishwashing Hint

ATTACH an ordinary garden hose nozzle to the hot water faucet in the sink, using the fine spray. Arrange the dishes on edge in a large pan, sprinkle with a good soap powder and place the pan under the faucet. Turn the water on, thoroughly spraying the dishes until they are clean, then remove them to a wire drainer, scald with boiling water and let dry. Then polish with a dry towel.—Mrs. L. C. Dittman, Lompoc, Cal. (H)

## Indoor Clothes Line

THE clothes line or wire is fastened to one end of the room by screw eyes about six inches from the ceiling, and to a curtain pole or similar pole at the other. Two pulleys about two inches in diameter are fastened about six inches from the ceiling at



either side. Window weight rope is tied near the end of the pole and run through pulleys down to fastener on the wall. A pole or stick is placed in center of ceiling. This takes up any slack rope. This clothes line can be let down to hang the clothes on, then raised up out of the way near the ceiling where the air is warmer and the clothes will dry quickly.—L. L. Kilgore, Colusa, Cal. (H)

Instead of tape hangers for towels, dusters and panholders, use a small brass ring sewed to the corner, and save time, energy and your disposition.—Mrs. M. Merkel. (H)

# PRETTY COSTUMES
## Selected by Isabel Sinclair

*These costumes are simple and can be made readily by the home dressmaker from the instructions provided. Send 15 cents in silver or stamps for each pattern desired. Address Pattern Department, Orchard and Farm, 1111 South Broadway, Los Angeles. Give full name and address.*

**2748—Boy's Suit**

Cut in 4 sizes: 3, 4, 5 and 6 years. Size 4 requires 1¾ yards of 27-inch material for the waist, and 1⅛ yards for the trousers. Price 15 cents.

**3530—Misses' Dress**

Cut in 3 sizes: 16, 18 and 20 years. An 18-year size requires 6¼ yards of 40-inch material. The width of the skirt at foot [illegible] yards. Price 15 cents.

**3551—Lady's Dress**

Cut in 6 sizes 34, 36, 38, 40, 42 and 44 inches bust measure. A 38-inch size will require 5¼ yards of 44-inch material. The width at the foot is about 2 yards. Price [illegible] cents.

**3529—An Attractive Apron**

Cut in 4 sizes: Small, 34-36; medium, 38-40; large, 42-44 and extra large, 46-48 inches bust measure. A medium size will require 3½ yards of 36-inch material. Price [illegible] cents.

**3553—Girl's Dress**

Cut in 4 sizes: 4, 6, 8 and 10 years. A [illegible] size will require 3 yards of 27-inch [illegible]. Price 15 cents.

**3518-3292—A Stylish Costume**

[illegible] 3518 cut in 6 sizes 34, 36, 38, 40 [illegible] inches bust measure. Skirt 3292 [illegible] 22, 24, 26, 28, 30, 32 and 34 [illegible] measure. To make dress of [illegible] will require 6⅝ yards of 27-[illegible] material for a medium size. The [illegible] skirt at the foot is about 1¾ [illegible]. Price of patterns, 15 cents for [illegible].

**[illegible]—A Practical Child's Set**

[illegible] cut in 1 [illegible] years. A 2-year size will require 2 yards of 36-inch material for the dress, ⅞ yard for the sack, and ½ yard for the bonnet, for which ¼ yard of lining is also required. Price 15 cents.

**3063—Dress for Home Wear**

Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Size 38 requires 5¼ yards of 36-inch material. Width of skirt at lower edge is 1¾ yards. Price 15 cents.

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# BOYS AND GIRLS Their Work and Play

## Here Are Color Contest Winners

ORCHARD and FARM'S art contest has ended, and, my! how many beautifully colored sketches the editor received! But the committee of judges (which included Artist "Hal," who drew the picture published last month) went over all the different entries with the greatest care, and finally selected the prize winners. Thrift Stamps are being sent to the lucky children.

The editor wishes, however, to thank and congratulate those who did not win prizes, but who showed so much interest and took so much pains with their work.

**CLASS I—12 TO 16 YEARS OF AGE**

**1st Prize—Reba Wilson, Calistoga, Cal. Age 13 years.**

**2nd Prize—Agnes Smith, Whittier, Cal. Age 13 years.**

**3rd Prize—Marian Hartzell, Chowchilla, Cal. Age 13 years.**

**CLASS II—6 TO 12 YEARS OF AGE**

**1st Prize—Madelina Tunk, Alameda, Cal. Age 10 years.**

**2nd Prize—Betty Randolph, Grant's Pass, Ore. Age 10 years.**

**3rd Prize—Janet Mattoon, National City, Cal. Age 11 years.**

No entries were received in the class under six years of age. The following, because of their excellent work, were given honorable mention by the judges:

Dorothy Bottroff, Santee, Cal.; Yasbiko Yamatoda, Gilroy, Cal., Amelia Fiala, Loma Portal, Cal., Dorothy Johnson, Marysville, Cal.; Hazel Bennet, Richmond, Cal.; Frank Ayers, Jr., Ojai, Cal., Alice Vincent, Sterling Kincaid, Cucamonga, Cal.; Paul Kershner, Oakland, Cal.; Elaine Bagley, Tracy, Cal., Elene Ensign, Redondo, Cal.; Mildred Coff[illegible], Termo, Cal.; Carl Seufert, Medford, Ore., Fanny Rosprin, Seaside, Cal.; Helen Coru[illegible], Ramona, Cal.; Gladys Hare, Inglewood, Cal., Evelyn Janda, Bay View, Cal., Loring de Merit, Sacramento, Calif.; Eveyln Rogers, Oak, Cal.; Irma Manfrina, Lompoc, Cal. Bernice Carlson, Madera, Cal.; Leona Rasmussen, Rio Oso, Cal.; Ellen Sheppard, Santa Rosa, Cal., Bammie Sims, Winters, Cal., Clara Vanderpool, San Jose, Cal.; Ruth Giltner, Burbank, Cal.; William Rogers, Imola, Cal.; Aldanita Steckmeyer, El Verano, Cal. Elton Lambert, Marysville, Cal., Bernice Payne, Riverside, Cal., James Crinkshank Long Beach, Cal.; Hailey Hillboldt, Owensmouth, Cal., Alfred Rodriguez, Van Nuys, Cal.; Dwight Morrow, Redondo, Cal.; William Holzer, Harold Case, Samuel Yee, Marysville, Cal.; Lois Soyle, Santa Barbara, Cal.; Joseph Anderson, Santa Ana, Cal., Margaret McKinstry, San Gabriel, Cal., Milton Knight, Sutter City, Cal.; Harry Russell, Scott Bar, Cal.; Annette Armstrong, Roseville, Cal.; Ethel Hughes, Fresno, Cal., Erwin McCluer, Calistoga, Cal., Esther Waer, Tulare, Cal.; Alice Williams, Van Nuys, Cal.; Vera Linser, Fortuna, Cal.; Edna Vendel, Brawley, Cal.; Francis Herring Ontario, Cal.; Theodora Trask, Anna Allen Snelling, Cal.; May Miller, Windsor, Cal., Robert Dahlstrom, Fairoaks, Cal.; Alice De Rycke, Upland, Cal.; Wilfred Fowler, Columbus, N. M.; Curtis Berndt, Eureka, Cal.; Alice Sbadwick, Chatsworth, Cal., Ruth Morgan, Shafter, Cal.; Iva Colby, Chowchilla, Cal.; Jewel Hyder, Orange Cove, Cal., Marjorie Baker, Anaheim, Cal.; Malda Child, Oakland, Cal.; Dorothy Miller, Morton, Wash., Wilda Hickman, Arlington Wash.; Edith Forsberg, Hood River, Ore.

## Litter of Pigs Provided College Education

HOW a litter of pigs made possible an agricultural college education, a system of farm waterworks, and general improvements on a backwoods farm that had only primitive advantages, is told in an interesting story of the benefits derived from a boys' club, organized by a county agent. Jeff Anderson, a member of the club, was encouraged to raise a litter of fine pigs under the club system by which the boys applied approved methods and kept account of the results. The pigs sold for a fancy price. Jeff made enough money from his labor to enter the State College of Agriculture for its short course.

Jeff had been used to seeing his mother carry water 150 yards up a hill for washing and cooking. At the agricultural college he realized the convenience and benefit to be gained by running water conducted to a tap in the kitchen. Upon his return home he persuaded his father to let him install a water system. A stand pipe 60 feet high was built, topped with a 500-gallon tank, which gave sufficient pressure to force water to the dwelling 400 feet away. He rigged up a gasoline engine and pump at the spring under the hill. He did all of the pipe fitting in the house himself. One month's work at odd times, coupled with a little of the knowledge he had gained at the State College of Agriculture, put the water right into the kitchen.

Jeff has gone back to complete his college education, and they are still raising better pigs at the Anderson farm.

## True Story of a Cat

I AM very fond of all kinds of pets, but the favorite is my cat Ike. He was so like his twin brother that we called them Ike and Mike. Mike, however, developed an unpleasant disposition and one day disappeared. Ike became my special pet and he will jump into my lap whenever I sit down. In the mornings he stands outside the door of my room, mewing until I open it for him.

He follows me every place I go and likes to have me roll him over on his back and play with him. Ike will sit up on his hind legs and beg for sugar. He loves sugar and always is nosing around my pockets, trying to find some. Sometimes he thinks I am not noticing and will put his paw into my pocket trying to get it out, as he knows I expect him to sit up for it.

Ike always sleeps on the top stair leading into the cellar from the kitchen. We always keep our incubators in the cellar during hatching season and one night the gas went out, then came on again, filling the cellar with fumes. Ike scratched at the door mewed so loud and made such a noise that we were awakened and the trouble remedied.

Ike is only one of the many pets on our farm, and my two brothers each have a dog and a pony, but of them all, I like my cat Ike the best.—Eleanor Sanford, Santa Barbara, Cal.

*The Barnyard Cafeteria*

## SOURCES of INFORMATION
*The Fruit of the Tree of Knowledge*

THE following new Government bulletins now are available and will be sent free upon request. Address Division of Publications, U. S. Dept. of Agriculture, Washington, D. C. Order by number.

| | FARMERS' BULLETIN |
|---|---|
| Baking in the Home | 1136 |
| Pork—Killing, Curing and Canning | 1186 |

The following technical or scientific bulletins, applying to special industries or localities, will be sent upon receipt of price listed. Address Superintendent of Documents, U. S. Dept. of Agriculture, Washington, D. C.

| | DEPARTMENT CIRCULAR | |
|---|---|---|
| Cotton Culture in the San Joaquin Valley in California | 164 | 5c |
| Farm woman's Problems | 148 | 5c |
| Peppers | 160 | 5c |
| Nicotine Sulphate in a Dust Carrier Against Truck-Crop Insects | 154 | 5c |
| Corn-Belt Farmers' Experience with Motor Trucks | 931 | 10c |

From the University of Montana, Agricultural Experiment Station, Bozeman, Mont., may be obtained the following bulletins:

| | CIRCULAR |
|---|---|
| The Bull and the Treadmill | 93 |
| Present Knowledge of Pale Western Cutworm | 94 |

The Soil Improvement Committee of the National Fertilizer Association, 820 Lumber Exchange Building, Chicago, Ill., will send the following bulletins upon request:

| | BULLETIN |
|---|---|
| Crop Feeding Pays | 12 |
| Fertilizers—What They Are; How to Apply Them | 13 |
| Facts on Fertility | 14 |
| Making the Most of Rainfall with Fertilizers | 22 |
| Fertilizers Save Farm Labor | 27 |
| Delayed Application | 28 |
| Commercial Plant Food | 33 |
| Fertilizers for Fruits | 24 |
| Oat Production | 17 |
| Wheat Production | 18 |
| What Fertilizers for Wheat? | 23 |
| Growing Buckwheat | 17 |
| Fighting Hessian Fly | 31 |
| More Plant Food for More Corn | 32 |
| Potato Production | 16 |
| Pickles and Profits | 21 |
| Onions and Profits | 22 |
| More Money From Tomatoes | 26 |

One of the most helpful and interesting bulletins yet issued by the United States Dept. of Agriculture is the 1921 Agricultural Almanac, which may be accepted by the farmer, fruit grower, gardener or poultryman as authentic.

The Almanac is prepared somewhat along the lines of the ordinary commercial book of this kind, but in much more pleasing and readable form. In addition to weather facts and hints, it includes practical suggestions for the work during each month of the year.

The bulletin may be obtained free upon application to the Office of Information, U. S. Dept. of Agriculture, Washington, D. C. Order by number—Farmers' Bulletin No. 1202.

### Free Chick Book

Poultry raisers will be interested in the news that President M. H. Schofield of the Poultrymen's Co-operative Milling Association has written a new and comprehensive book on the feeding and raising of chicks, which is offered free to those writing or applying to the office of the association, 1516 Industrial street, Los Angeles.


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California soils respond promptly and generously to intelligent fertilization. This is particularly true concerning nitrogen, in which important plant food so many soils are deficient.

Director Hunt of the Berkeley Experiment Station writes:

> "Whether it is Mottle Leaf in orange trees, Little Leaf in peach trees or low yields of wheat, the cause appears to be the inability of the plant to secure and assimilate a proper supply of nitrogen."

As is always the case, some form of nitrogen is better than others. The California Experiment Station advises the growers of this State to use *Sulphate of Ammonia.*

## *Arcadian Sulphate of Ammonia*

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114 Western Ave., Port Washington, Wis.



**Built to Stand Abuse**

# Why Tractors Are Supplanting Horses

(Continued from Page 10)

cent, interest at 6 per cent, stable rental, straw, salt and shoeing, this New York farmer arrived at a total of $667.04 for keeping one team of horses one year.

A Kansas farmer figures a year's cost of operating an 18-36 tractor, which he considers the equivalent of five teams, at $978.45. The cost of keeping five teams for this period of time would be approximately $3000, and it is doubtful if they could do as much or as good work as the tractor in as short a time.

The tractor plowed 330 acres, double disced 70, disced and drilled 50. The owner figured the cost per acre at $1.82. He said, "I find the tractor has accomplished quite a saving over the cost if the same work should have been done with teams. Aside from the extra cost for teams it was next to impossible to get men to work the teams and we would have been lucky to have put in 200 acres with them, whereas we got in 400 acres of wheat with our tractor."

Another Kansan who owned a tractor kept a record of work and cost for three years as follows:

First year—Plowed 240 acres; disced 125 acres; harrowed 160 acres (twice); cost $105.

Second year—Harvested 240 acres; plowed 240 acres; cost $250.

Third year—Harvested 210 acres; plowed 280 acres; harrowed 240 acres; disced 30 acres; drilled 185 acres; cost $400. (Harrowed twice and thirty acres of it three times.)

According to a conservative estimate, it would have required at least three teams for this work and their feed cost alone would have been over $1350 each year, or $4050 for three years, while the tractor's feed (fuel, oil and repairs) was $105, $250 and $400, a total of $755 against $4050—again a big saving in favor of the tractor.

"This is less than one-third what it would cost to do the same work with teams and I could not get help to drive the teams. I farm 500 acres and do it all myself with the exception of harvesting. When I can't be on the job for the day my wife operates the tractor for me and thinks it a pleasure. I also do my drilling with the tractor at a cost of 12½ cents per acre. The tractor is always on the job. When I finished my farm work I hooked it onto a 20-inch separator and threshed 13,137 bushels of kafir corn, oats and cane seed. Cleared the price of my engine at that job and my repair bill has been, for all plowing, drilling and threshing, $25,45. I think my engine as good as new."

"Only keep half as many horses," is the result secured by two other farmers by the use of a tractor. They emphasize the fact that they could do their work when they wanted to. They plowed 165 acres with the tractor at a cost of $49.64, and figuring the market price of the feed necessary for four horses, they saved the difference between $134.06 and $49.64, or $84.42, on the 165 acres.

O. C. Tucker, another farmer owning a tractor, believes that motor farming reduced the cost of his planting almost one-half, as in nineteen days he plowed 255 acres at a cost of 31½ cents per acre. He now keeps six horses instead of twelve, and he would not consider farming with horses on a larger scale, because, he says, "I not only do the work cheaper with the tractor, but I do it better and in less time."

One Oklahoma farmer with a larger tractor favors it, as he can get a good deal more work done in a shorter time. Here is the list of the advantages of his tractor as he reported them:

"Grain threshed, about 22,000 bushels; double discing, about 80 acres; plowing, about 200 acres; expense of my tractor, about $610.25. Tractor farming has enabled me to sell three horses. The tractor doesn't have to have any care when idle like horses do and doesn't eat anything either. This year was an exceedingly poor year to test my tractor-plowed ground, but as near as I could see, it was just a little more productive than the horse-plowed land.

"The same cost comparison holds true in the case of the motor cultivator—it does more work than horses, does better and faster work, and saves money.

"I have been operating a two-row motor cultivator in this valley this spring and the cost of operating has been about 50 cents per acre against about 75 cents with teams, and like the rest of the tractor family, the motor cultivator gives absolutely no trouble or expense."—D. R. Van Petten, Arizona.

(To Be Continued—May Issue)

# Why Horses Lead in Field Work

(Continued from Page 10)

large type, medium type and small type tractors and have discarded all of them as unsuitable for field work. A decided decrease in crop yield was noticeable in the years when they were used, and for two or three years subsequent thereto."

Frank Harris of Tremont, Ill., known as one of the most successful farmers in his county: "In 1918 nine farmers in my immediate neighborhood, including myself, were prevailed upon to buy tractors. Very few of these will be used this spring. For my own part, I have decided I will never use mine again in field work, as it injures the land, reduces the yield and is altogether too expensive."

Other specific instances could be cited by hundreds, but these are representative and indicate conclusively that the contention of the tractor dealers that crop yields are increased by the use of tractors is without a shadow of truth.

The arguments put out by the tractor manufacturers, in which they emphasize increased production as one of the prominent advantages of the tractor, often cite only a few instances of increases in production without attaching the names and addresses of the farmers alleged to have secured such increases.

In the light of conclusive evidence set forth above, it is evident that tractor manufacturers are trying to make prospective buyers believe something that is not so. They give no testimony from farmers of well known reputation, or they would have given names and addresses instead of seeking refuge in anonymity. If there were any evidence in existence of the kind they want, coming from an entirely unprejudiced body, be sure their publicity men would feature it broadcast.

The second main contention of the tractor men is that more work can be done at less cost, but the figures which they give are false on their face. Take, for instance, tractor plowing costs set forth in a recent article and given wide circulation. They report that one of their tractors plowed 17.7 acres per day at a total cost of $14.26, or an average cost of 81 cents per acre.

Tests made by various experiment stations show that the tractor does extremely well to plow three acres per bottom per day, so that the tractor used on this particular job must have been a large machine drawing six bottoms. Frequently the tractor fails to give specific information, such as the size of the machine, the [illegible] and the age. However, in the case of a machine drawing six plows, [illegible]

[illegible] Engineering Department [illegible] University of Illinois show [illegible] tractors require from two to [illegible] gallons of fuel per acre plowed, [illegible] less than two and one-half [illegible].

On this basis the fuel required would [illegible] been twenty-four gallons at the [illegible] minimum, whereas the report [illegible] but twenty-eight gallons. The discrepancy shows the case to be a most exceptional one, and casts grave doubt on other items emanating from similar sources.

But, more important, the tractor [illegible] often refrain from taking into account the fixed charges on the tractor, which necessarily are so heavy that any omission of them is with the evident intention of deliberately misleading farmers.

The cost of a certain six-plow tractor in 1919 was $3600. The Connecticut Agricultural College allows seven years as the life of a tractor; the Illinois survey referred to allows from five to six years. Many machines do not last this long; undoubtedly many last longer. The figures given are the aver-

age, and whenever one of these "hundreds of machines built in 1909, 1910 and 1911" happen to be still at work in territory surveyed by an educational body the average will be materially raised for the whole community.

However, figuring that this tractor will last six years, the fixed charges for depreciation accumulating, whether the tractor is running or not, amount to $600 per year. Annual interest at 6 per cent will be $216 per year. Annual repairs at 4 per cent (which the Department of Agriculture gives as the minimum allowance for repairs) will be $144. Total fixed charges on the tractor annually, therefore, amount to $960. (It is small wonder that this item is omitted from the tractor literature.)

The Illinois Experiment Station, in its report referred to, on their tractor investigation, says that the average number of days worked by tractors was 78. (This included belt work done.) The Department of Agriculture, summarizing the studies of tractor use on 1910 corn belt farms, reports an average of 29 days per year for both field and belt work. This corroborates the experience of the Illinois Experiment Station, so that 30 days per year is a fair figure. This means an expense for fixed charges of $32 per day must be added, so that even on the basis of the manufacturers' figures (which I consider entirely too low in the light of experiments made by the various agricultural engineering departments) the actual cost is $48.26 instead of $41.26 per day for 17.7 acres, which makes the average plowing cost $2.72 per acre instead of 81 cents. It grows clearer and clearer why they leave out the mention of fixed charges.

So much for the tractor costs. Next I will discuss horse maintenance figures and show that the cost of keeping horses in reality is much less than claimed by tractor interests.

(To Be Continued—May Issue)

## Relief for Caked Udder

Put a woolen cloth into a bucket of very hot water, wring as dry as possible and place on the udder, steaming. Keep reheating and applying to the quarters. Be sure to wring the cloth as dry as possible. After steaming thoroughly but gently [illegible] from salt. Repeat this every four hours until relief [illegible]. Mrs. F. L. Geer, Paso [illegible]


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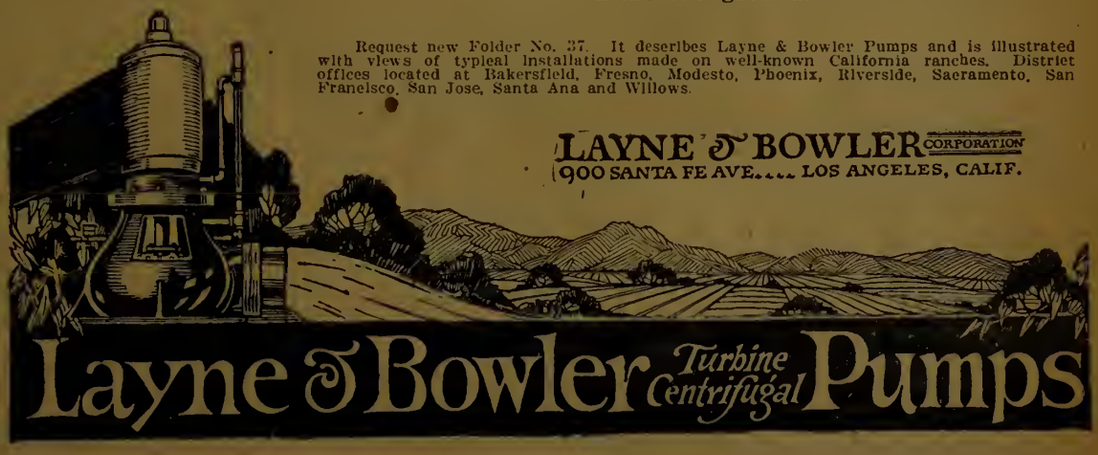


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IF YOU WANT to sell or exchange your property, write me. JOHN J. BLACK, 110 St., Chippewa Falls, Wis.

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16½ ACRES, half mile from Boulder, Santa Cruz Mountains. 9-room double constructed house, garage, barn, chicken houses for 1000 hens, 2½ acres young prunes, family orchard, 4 springs piped to house and chicken house. Wood for fuel and posts. A fine home and summer resort. Main road. Price $6000, terms, $2500 cash, balance long time, 6%. R. N. Leiness, Boulder Creek, Calif.

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300,000,000 ACRES GOVERNMENT LAND in United States. Send for free descriptive circular of our 100-page book, "The Homeseeker," tells where good farm, timber, grazing land is, or send $2 for book direct from the Homeseeker, Dept. 60, 236 S. Broadway, Los Angeles, Cal.

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FOR SALE CHEAP—155 fine young ewes, 1, 2 and 2 years old, are bred to our State Fair and International Champion Romney Rams (finest in America). About 20 have already lambed, balance soon. Have year's wool, fat and heavy shearers. Price $8 per head. Tribble Bros., Lodi, Cal.

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REGISTERED Chester White Boar, 2 years old, for sale at the low price of $65. He is a splendid individual weighing around 500 pounds. Satisfaction guaranteed. E. T. Johnson, Boulder Creek, Cal.

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PURE BRED POLANDS shipped on approval. Contracts sent on request. Sire, Iowa Pilot-Smooth Clansman. We breed nothing but the best. California Swine Corporation, Escalon, Cal.

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A FEW CHOICE GILTS, bred or open; weanlings, either sex. Breeding and satisfaction guaranteed. H. E. Boudier, Napa.

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ORDER HAVANAS—The brown velvet rabbits for June delivery. Perrywinkle Rabbitry, 720 Kingsley Dr., Los Angeles.

PEDIGREED Flemish Giants, also utility stock; no fancy prices. Mrs. T. Beeching, 1578 W. 46th St., Los Angeles, Cal.

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CALDWELL'S White Muscovy Ducks win weight, lay and pay. The largest duck of the duck family. The duck without the quack. Eggs. Week-old ducklings, hen hatched. Free circular. Caldwell Duck Ranch, Lock Box 274, Los Angeles.

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SEVERAL varieties. Mammoth Bronze, Bourbon Red, White Holland Turkey eggs, $6 dozen, choice prize stock. White guinea eggs $1.50 setting. Illu... $2 set'g. chicks to order, 20c. White Muscovy (quack...) duck eggs, $1.50 dozen. Grand turkey gobblers for service, $2 per hen. One mating fertilizes one whole clutch of eggs. Inflocking. 541 East 22nd, Los Angeles, Cal. Parcel post 25c.

TURKEYS—Goldbank "Copper King V" strain. Selected, giant bronze toms. Sired by son of famous "Copper King V," first prize yearling, N. T. B. Club Show, Madison Square, N. Y., January, 1919. Bred to 20 lb. hens. Egg orders taken. Prices reasonable. Address Bronze King Mountain Farm, P. O. Box 308, Calistoga, Cal.

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HART'S MAMMOTH BRONZE TURKEYS. Am now booking orders for eggs by the setting or hundred. No more stock. A. D. M. Hart, Clements, Cal.

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$1400 PER ACRE FROM RHUBARB first season after planting reported last season by Glendale grower through Rhubarb Association. Association been getting $1 per lb. box since Jan. 2. (Price went to $1.50 March ...) Plant this money maker this spring. Best intercrop for young orchards. Write at once for full information. A. Lee, Route 1, Covina, Cal.

SUDAN GRASS—Pure seed, ... inspection, free from Johnson grass. $3 per 100 pounds; 1000 pounds $27.50. All kinds of ... grown seed, lowest prices. B... Dallas, Texas.

NAPIER GRASS, a wonder for southern localities, sprouted joints, 40, $1; divided crowns, 25, $1. Postpaid. Parcel insured, prepaid this next week. Tin..., Yucaipa, Calif.

OUR Introduction—Wonderful New hybrid Alfalfa. Write J. L. Lawson, Redlands Tree and Seedman, San J...

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CAPACITY 170,000 EGGS
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The spring season will soon be in full blast now and we are prepared to take care of our customers on any size order.

Entirely an electric hatchery, insuring you the best chicks from the best eggs; properly handled, honestly counted (two extra chicks to the hundred); promptly delivered by parcel post or express anywhere within 72 hours' run from Los Angeles.

We surely have your favorite breed in the following kinds: Rhode Island Reds, Barred Rocks, Anconas, Black and White Minorcas, White or Silvered Laced Wyandottes, Brown Leghorns, Buff Leghorns; also our dependable Oregon McFarland White Leghorns.

Pekin ducklings and baby turkeys.

Why not send for price list and place your order for early delivery?

REDWING HATCHERY,
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BARRED ROCKS (THORO'B'DS), that lay; record 1920, 220 per hen average. Customer quotes 196 and laying, year record. Hatching eggs, local, $2.00. Express, $2.60 per 15; chicks, 25 or 60, local 26c; express 30c. Warren strain of ROCKS; years of breeding. Eastern cockerels each year for improving the flock, after careful culling each fall. Orders booked for chicks and eggs, cash with order. I can take orders for April and the following months. August and September chicks making some of our best records. No stock for sale except cockerels. Sold on order in September and October. Mrs. M. A. Warren, P. O. Box 517, San Jose, Cal.

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WHITE AND BROWN LEGHORNS, guaranteed strong and vigorous, and bred for large egg production. Full count and safe arrival guaranteed.

Anderson's Hatchery,
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FULL COUNT SAFE DELIVERY
GUARANTEED Selected, heavy, laying HOGANIZED MacFarlane, Tom, Barron, WHITE LEGHORNS, Anconas, Barred Rocks, Rhode Islands, Minorcas, Buff, Brown Leghorns. ORDER EARLY. Write for prices. Doke Hatchery, Established 1908, 625 So. Spring St., Los Angeles, Cal.

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S. C. WHITE LEGHORN baby chicks from heaviest laying (Hoganized) stock. Safe delivery; live, vigorous chicks guaranteed. No money in advance; pay on delivery. Price for May and June, $5.00 per 26, $9.00 per 60, $14.00 per 100. Special prices 500 and 1000 lots. Largest electric hatchery in the world. Established 1898.

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GET CHICKS NOW and have layers for next winter, when eggs are high. Hatches every week. Prompt, reliable service. Safe arrival of vigorous chicks from good layers guaranteed. Hatched by electricity. White and Brown Leghorn, R. I. Red, Barred Rock. Reasonable prices. Stubbe Poultry Ranch and Hatchery, Box 67-B, Palo Alto, Cal.

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BABY CHICKS—Barred Rocks and Reds, from bred-to-lay stock. 10 Rock pullets laid 1987 eggs in one year; 25 chicks, $5; 50, $10; 100, $20. Choice hatching eggs $2 per 15, sent by parcel post prepaid. Send for circular. Hargett & Son, Route 2, Compton, Cal.

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SLY'S OLD MISSION STRAIN RHODE ISLAND REDS. My customers won highest honors at various California shows last season. See testimonials in new catalogue now ready. Six ideal matings. Hatching eggs at reasonable prices. NO BABY CHICKS. A. G. Sly, 1642-J, Middleton Place, Los Angeles.

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CORRECTLY hatched chicks, from carefully selected hens. Safe delivery guaranteed. White Leghorns, Anconas, Rhode Island Reds, Black Minorcas and Blue Andalusians. Write for prices. The White Leghorn Hatchery, 951 East Second St., Pomona, Cal.

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# Pioneer Incubators---Baby Chicks

Immediate delivery can be had on Pioneer Incubators in 540, 270, 135, 110 and 72-egg sizes, either electric, gas or coal oil machines; these are absolutely the best incubators made and when better ones are manufactured we will handle them.

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**35,000 EVERY WEEK**

We can supply baby chicks in any quantity and can handle single orders in 6000 lots of R. I. Reds, Barred Rocks, White Leghorns, Brown Leghorns and Anconas; and we will have a limited supply of Black Minorcas, White Minorcas, White Rocks, White Wyandottes, Indian Runner ducklings and Mammoth Bronze turkeys. All our chicks are hatched from selected eggs supplied from thoroughbred flocks owned by experienced breeders who have been connected with us since we first started in business fifteen years ago. Send for price lists and catalogues and place your order soon to avoid disappointment on delivery. Finest incubator, brooder and baby chick display in the city. Visitors welcome at all times.

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"WORLD'S LARGEST BABY CHICK HATCHERS."

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# Hart's New Brooder

My brooder plans tell how to make a brooder for 100 to 600 chix. Use one burned oil cook stove for heater. I threw out my coal and distillate stoves when I invented this system. No thermometer or hermostat needed. No overheating, chilling, worry or grief. No burnt air in the brooder room or hover. Don't need to teach chix to roost. A child can operate it. Very simple. Turn any old shed into a brooder house. Directions for new house. Feeding directions for chix tells not only just what to feed, but exactly how much—right to the ounce—no guesswork. No gapes, toe-picking, leg weakness, diarrhea, etc., in our chix.

My book also contains my feed formulas and methods that save me 25c to 50c a hen a year, and produced fourteen 300-egg hens out of 450 pullets. How I fed a test pen of 90 pullets one grain feed a day and got four 300-egg hens. Other items are: Self-feeding hoppers that are wasteproof (my new idea may work on your hoppers to make them wasteproof). Artificial dropping board with miteless roosts. No. 1 mite paint at 10c to 25c a gallon. Wet mash mixer for 500 to 1000 hens for $1. Valuable items on feeding and culling. How I selected the pullets from the general flock to be trapnested at Salem that made so many high producers.

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Remember this: Your money back if not satisfied with the book. Over 700 sold last spring. This Journal guarantees this ad. You can't lose.

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# Hanson's S. C. W. Leghorns

**Win in Egg Laying Contests.**
**Now First at Santa Cruz.**
**Pullet Flock Average 221 Eggs.**

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BABY CHICKS — Purebred Schlotthauer Strain Single Comb White Leghorns, bred to lay. All breeding stock carefully selected and Hoganized for thirteen years to insure heavy laying and strong, hardy chicks. Guaranteed safe delivery, and full count. Write for booklet. White Plumage Poultry Farm and Hatchery, Exeter, Cal.

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WHITE Leghorn chicks from 240 to 280-egg hens, mated to 280-egg type cocks. Bred for 18 years for vigor, heavy laying and standard requirements. Trapnested and Hoganized. McFarlane and Barron strains. Eggs, $2 per 15; $8 per 100. Chicks, $15 per 100. A. Worel, R. D. 3, Napa, Cal.

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BABY CHICKS.

From my heavy laying strain of pure blood White Leghorns, males, from trapnested hens of egg records. 250 eggs per year and over. Also Silver Campines, Brown Leghorns, Anconas. Oak Knoll Poultry Ranch. T. E. Blake, Santa Cruz, Cal.

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WARD'S SINGLE COMB REDS win at the 1920 State Fair, 4 Firsts, 2 Seconds, 1 Third, 11 Specials. Reds largest class in show. Hatching eggs, cockerels and pens. WARD'S POULTRY FARM, 39-B South Lincoln Ave., San Jose, Calif.

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WHITE Leghorns—Hatching eggs our specialty. Produced right, selected right, shipped right; 100 per cent fertility guaranteed. No better stock in the west. Prices very reasonable. No chicks. Curtis White Leghorn Ranch, R-1, Box 29, Gardena, Cal.

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FREE book, "CHICKENS FROM SHELL TO MARKET," on application to Coulson Company, Petaluma, Cal.

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THOROUGHBRED utility S. C. White Leghorn chicks from heavy layers, Hoganized and trapnested stock, 100 or 1000 lots. Write today for hatching dates and prices. Forster Brothers, 2918 Otis St., Berkeley, Cal.

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BABY chicks—White Leghorns. Bred to lay lots of eggs. Early maturing. Satisfaction guaranteed. Write for prices. Hatch every eleven days. John F. Forney, Box 593, Kingsburg, Cal.

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BABY CHICKS every week. Barred Rock, R. I. Red, Black Minorcas, Brown and White Leghorns. Safe arrival and satisfaction guaranteed. Tobener Hatchery, Route 2, Box 306, San Jose, Cal.

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BABY CHIX—T-A-N-C-R-E-D-S, 300 egg White Leghorns, Barred and White Rocks, R. I. Reds, Buff Orpingtons, Black Minorcas, Anconas, Golden Buff and Brown Leghorns. Enoch Crews, Seabright, Cal.

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S. C. RHODE ISLAND REDS, White Leghorns, selected 12 years for egg production; 15 eggs, $2, postpaid. Lorlag N. Kirk, Upland, Calif.

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HOGANIZED Rhode Island Red eggs for hatching, $2 for 16 or $10 per hundred. Mrs. T. Beeching, 1578 W. 46th St., Los Angeles, Cal.

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BLUE Andalusian Stock and Eggs. Write for prices. J. R. Huddleston, 342 Edgeware Road, Los Angeles, Cal.

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ATASCADERO Poultry Farms, owned by Lewis Foundation Corp. S. C. White Leghorns, Rhode Island Reds, baby chicks. Henry Miller, Supt., Atascadero, Cal.

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CHEAP CHIX.

Our specialties: R. I. Reds, Barred Plymouth Rocks, Black Minorcas; $17 per 100. Denton Poultry Yards, Campbell, Cal.

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C. W. ANGIER'S "Ringlet" Barred Rocks are now on his ranch at La Crescenta, Cal. A great egg strain. Eggs $3 per 15.

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ANCONAS, hatching eggs, $2.60 per 15; $6.00 per 50, delivered. Cockerels. No chicks. A. Wilkinson, Winton, Cal.

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EGGS from beautiful Blue Orpingtons, first prize winners; $6 for 14. Neille Maehl, 1220 McCadden, Hollywood, Cal.

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BLACK Leghorns, Yellow Legs, real Leghorns, Silver Campines, good sizes, white eggs, $2 per 15. A. C. Hayes, Cupertino, Cal.

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Best chicks grow into greatest winter layers. Cost little more, yield greatest profit. Our W., Br., Buff Leghorns, Andalusians, Reds, Anconas, Rock, Wyandottes (ducks, turks.), bred 20 years to lay winters, and 180-290 eggs yearly, often clear customers $5. "Pullets raised from your chicks averaged 209 eggs last year." "114 hens cleared $612 in 12 months." "Fourteen pullets laid 300 eggs Jan., 330 Feb." "Get more winter eggs from 60 your hens than from 200 formerly." 140,000 electrically hatched. Over half booked, yet most weeks open for thousands, reasonable. Former customers take half. Don't delay. Write (rarely home) W. Beeson, Pasadena.

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SPECIAL DELIVERY BABY CHICKS

We have the following varieties of thoroughbred chicks every week: White Leghorns, Anconas, R. I. Reds and Barred Rocks. All chicks are from carefully selected eggs and rigidly culled flocks.

This year all chicks are sent by Parcel Post Special Delivery, thus delivering at your door chicks in the best possible condition and in the shortest length of time.

You should send for price list and put your orders in early.

ORANGE COUNTY HATCHERY, Harold C. Hebard, Prop., Santa Ana, Calif.

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**WHY**

Because they are properly hatched and handled and we can supply chicks

EVERY DAY

—We guarantee a full count of live chicks at destination on lots of 25 or more.

—Poultry—all breeds. Send for Price List.

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BUY EARLY CHICKS.

Early hatched chicks are the best always. They are stronger, much easier to raise than late chicks, mature and lay earlier, develop into larger and better birds. We are now booking orders for early hatched chicks. Do not fail to place your order in time for the early hatches. Several varieties, from our own breeding pens. Circular sent upon request. Beresford Poultry Farms, San Mateo, Calif.

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BABY CHICKS—EGGS—Hoganized White Leghorns (none better), Brown and Buff Leghorns, utility Rhode Island Reds and Barred Plymouth Rocks, choice Anconas, Black Minorcas and Blue Andalusians, bred for heavy egg production. Free folder. Order early. McDonald Poultry Ranch and Hatchery, Route 1, Box 246, King Road, San Jose, Calif.

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POULTRYMEN, are you scoring the success that you had hoped? Do you want to eliminate diseases? Do you want to increase efficiency? Whether you keep 12 hens or 12,000 you should read my FREE 28-page booklet, NEW FACTS FOR POULTRYMEN. Drop a postal to A. E. Bourke, Box 1133, San Diego, Cal.

---

BARRED PLYMOUTH ROCKS—"Nothing better in poultry." Wonderful layers. Hens and pullets for sale; also choice cockerels that will improve your flock. Now booking orders. Have made a specialty of Barred Rocks for over twenty years; "that's why" our birds win at all leading shows. Catalog free. Vodden's Rockery, Los Gatos, Cal.

---

ANCONAS, S. C. White Leghorns, baby chix, hatching eggs. From heavying laying prize winning strain. Eggs $2 and $3 per 15. Mail orders 50c extra. Write for mating list. Mrs. George T. Higgins, Lincoln 333, 126 E. Ave. 37, Los Angeles.

---

BETTER HATCHED CHICKS—S. C. White Leghorns, R. I. Reds. Our chicks are bred right, hatched right, priced right, delivered right and they grow right. Hatch each week. San Diego Co. Hatchery, San Diego, Cal. R. 1.

---

HATCHING EGGS for sale from THOROBRED-TO-LAY Anconas, White Leghorns and Buff Orpingtons. FERTILITY GUARANTEED. Price, postpaid, $2 and $2.60 per 16 eggs. P-St. Poultry Yards, L. R. Link, Prop., 714 P St., Sacramento, Cal.

---

WHITE Minorca Cockerels, Leech strain, Hoganized; also hatching eggs, same strain, $2 setting. H. W. Thompson, R. 13, Los Angeles.

---

BABY CHIX, hatching eggs, Reds and Leghorns, from world's record layers. Elmhurst Poultry Farm, 6217 T St., Sacramento, Cal.

---

SINGLE COMB BLACK LEGHORNS. Combined beauty and utility. Why? Write for circular. Hatching eggs, etc. Fred Turnbull, Box 108, Alameda, Cal.

---

BUFF MINORCA and BROWN LEGHORN hatching eggs. Orders taken for Baby Chicks, standard blue ribbon stock. Dr. Manning Sperl, 171 No. Craig Ave., Pasadena.

---

MINORCAS, black, white, utility and exhibition. Eggs. Catalog free. C. E. Murray, Route 1, San Diego, Cal.

---

EGGS for hatching for sale. Rancho Del Martino strain; $2 for 16; $5 for 100. Riverside Ranch, R. A. Box 152A, Oakdale, Cal.

---

"EASTMAN'S Bred-to-Lay" Hoganized and trapnested, Barred Rocks. BABY CHICKS. Fairmead Poultry Farm, Fairmead, Cal.

## GUINEA PIGS, MICE, RATS, ETC.

GUINEA PIGS for sale. Blacks, whites, reds and creams; also broken colors. Write me your wants. J. E. Love, 104 South Rose Ave., Lamanda Park, Cal.

**Classified Ads Continued on Page 42**

# Install piston rings that won't leak

**Save fuel and oil—prevent carbon—and increase the power of your gas engines!**

Put a Superoyl Ring in the top groove of each piston to keep lubricating oil out of the combustion chamber. It stops the waste of oil and cuts down carbon troubles.

Install the real Leak-Proof Ring in all lower grooves. The *equal radial pressure* of its exclusive 2-piece design keeps gasoline from wasting past it. All your fuel is compressed into power—as it should be.

These rings stand for 10 years of successful experience in the manufacture of fine piston rings. Your dealer can sell you a size and over-size of both rings for any engine ever made. Always install the combination.

McQuay-Norris Mfg. Co., St. Louis, U. S. A.

*for* Automobiles
Motor Trucks
Tractors
Motor Boats
Motorcycles
—all Farm Engines
Pumps and Compressors

4F

***Write for Free Book***

It explains why McQuay-Norris Piston Ring Equipment will increase gas engine power, save fuel and oil, and decrease carbon troubles. Address Dept. AK

McQUAY-NORRIS
LEAK-PROOF Superoyl
PISTON RINGS



MORE Power
LESS Weight
LONGER Life

# CUSHMAN

## All-Purpose Farm Engines

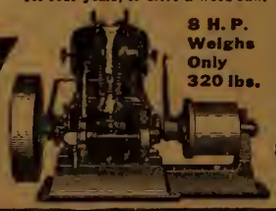
These are the original light weight all-purpose farm engines—sizes 4 to 20 H. P.

The Cushman 4 H. P. weighs only 190 lbs.—8 H. P. Double Cylinder only 320 lbs.—15 H. P. Double Cylinder only 780 lbs.—20 H. P. Double Cylinder only 1200 lbs.

Cushman Motors have extra equipment, such as Throttling Governor, Carburetor, Friction Clutch Pulley and Water Circulating Pump, without extra cost.

## He Never "Choked" the Cushman

W. J. Kelley, McMinnville, Oreg., wrote: "I have operated an 8 H. P. Cushman for four years, to drive a wood saw. My saw is 32 inch 13-gauge Simonds saw. I have probably cut 8000 or 10000 cords of wood and I never got a stick that was too big or too hard for the Cushman. It was only a matter of how much weight the feeding table would hold. It is a marvel of strength, with very little consumption of gas—from four to six gallons of distillate every ten hours."



**8 H. P. Weighs Only 320 lbs.**

Write for Book on Light Weight Cushmans.

**CUSHMAN MOTOR WORKS**
**880 North 21st Street : Lincoln, Nebr.**

Thomas R. Browne, District Manager, 838 E. Main St., Stockton, California
*Full stock of repairs at Stockton*

(360-a)

**Original Light Weight Power**



**ARNOTT DRAG SAW**

Will saw logs up to 6 feet in diameter, 15 to 30 cords of 4-foot wood per hour. Engine fitted with clutch. Not necessary to stop engine when moving saw. Write for full information. Call and see them when in the City.
ARNOTT & COMPANY, Inc.
112 S. Los Angeles St., Los Angeles


# SYSTEM
*in shop—office—and—field*

## The Advantages of Gasoline Lights

THE housewife has played an important part in the advancement and general use of gasoline lighting equipment, just as she readily adopted the washing machine, the carpet sweeper and other practical service-giving and labor-saving things for the home. The task of filling and cleaning coal oil lamps, and trimming wicks, is a thing of the past in many farm homes. The gasoline lamp is always ready to light with common matches and to shine forth its brightness in any room of the home without dirt or smell. The gasoline lantern, also, has replaced the old style lantern on thousands of farms.

A survey recently completed shows that gasoline is solving the lighting problems in more than two million rural homes, and a surprisingly large number of city homes as well.

One of the principal reasons for the popularity of gasoline lights is their exceedingly low cost. The gasoline is generated into a vapor, and the cost to burn is but a little over a penny a night. These lamps, because of the small amount of gasoline used, need be filled only about once a week.

Improvements have eliminated the argument of "danger," and gasoline lamps, lanterns and lighting plants are recognized by the highest authorities as absolutely safe. They cannot be filled while lighted, and there is no danger if they burn dry.

Their steady, soft, non-flickering white light is restful to the eyes and is equal to 300 candlepower. They are made in many artistic designs and will last an ordinary lifetime.

Even the temperamental hen, prone to curtail production when eggs are highest, has shown a marked liking for gasoline lights. Many farmers use the lanterns in the henhouse and coax Biddy to lay eggs with springtime regularity, the real secret being, of course, to lengthen the hen's working day and shorten the nights.

## My Experience With Plant Selection

THE benefits of plant breeding through selection need not be confined to scientists such as Luther Burbank. Every farmer should practice seed or plant selection for improving his crops. When selection is combined with proper fertilization and careful cultivation results may be amazing.

I had experience along this line with oats, discovering one stalk or stool of oats that grew as a volunteer plant in my alfalfa. I dug it up and found that there were 2250 grains of oats from the one stool, all of which had grown from one seed grain. By selection and careful cultivation, I developed oats that produced 90 heads, one stool having at least 5000 grains. I have conducted similar experiments with wheat and believe that any farmer, by combining seed selection with better cultural methods, can increase his own crop yields.

Similarly I found one potato plant in one of my fields which had an enormous top, standing at least 30 inches tall. Thinking the plant had run entirely to foliage, I expected to find a few potatoes about the size of hazel nuts. But upon digging, to my surprise, I found the hill filled with potatoes about the size of turkey eggs. Upon weighing the yield from this one plant I found a total of 30 pounds. It is by selection from heavily yielding, healthy plants such as this that high producing strains of potatoes are developed.

In the same manner garden vegetables and fruits may be improved upon the farm by any observing food producer. The science of plant improvement is not limited in its application to scientists or specialists.—D. R. Ruble, Salem, Ore. (H.)

***A Modern Ranch Bunk House***

***Above is shown one unit of the buildings provided by the Sunshine Ranch, Los Angeles County, for the accommodation of the help. Each room has an abundance of light and air. Modern plumbing, including a shower bath, has been installed. Much attention was given to establishing lawn and shade trees. The owners of this ranch believe that good accommodations aid in solving the labor problem.***

## How to Make a Permanent Whitewash

IT IS discouraging when the first rain eliminates nearly all the whitewash. However, when made from the following recipe, it will be better at the end of two years than common whitewash after one rain:

| | |
|---|---|
| Unslaked lime | 7 pounds |
| Salt | 1 pound |
| Sulphur | 1½ pounds |
| Hot buttermilk (150 to 180 degrees F) about 7 quarts. | |

Break up the lime, add half the salt and sulphur, pour on some hot buttermilk and stir. Continue to add buttermilk as lime slakes. Add the rest of the salt and sulphur before all the lime is slaked. Use more or less of the buttermilk, according to thickness desired.

If the whitewash is to be applied with a brush it should be a little thicker than paint, but if it is to be applied with a sprayer, it should be somewhat thinner. A little water may be added to the buttermilk, but not more than one part water to two or three parts buttermilk, as the latter tends to make the whitewash hard. The cost will average about 30 cents a gallon at the present price of buttermilk. Sour milk is almost as good.—Charles L. Schufeldt.

## Firewood—Sixth Farm Crop

WHILE farmers have watched the prices of corn, wheat, livestock and other farm products go down, many may have overlooked the one farm commodity that has not only held up in price, but which is in great demand and offers splendid cash profits now when they are needed most. This crop is firewood and it is ripe for "picking." Although neglected by many, statistics show firewood to be the sixth farm crop in value, being headed only by corn, wheat, cotton, hay and oats.

If this were still the age of the cross-cut and the buck saw, sawing wood for profit would be rejected as too suggestive of backache and blistered hands. But in these modern times the power-driven log saw, which is light in weight, easily moved and dependable, has supplanted the cross-cut and buck saw and made the once hardest of all farm jobs an easy and pleasant task. With such a machine the farmer can easily earn the ready cash he must have to keep things going.

## Why He Had Tractor Trouble

He hammered near the magneto.

He never cleaned off the valve stems.

He left his tractor out in the storm.

He lost his instruction book the first week.

He allowed dirt to get into the gasoline tank.

He continued running when there was a knock in the bearings.

He tried everything his friends suggested, and experimented a good deal.

He did a hard job of field work when there were several loose bolts on the machine.

He filed the contact points in the breaker box so much that they wore out quickly.

He tried to start his load before the engine was warmed up and running freely.

He always attempted to make one more round when the oil became low in the crank case.

He always let the clutch in quickly. He attempted short turns when the plows were pulling deep in hard soil.

## Hotbed Hint

Will you kindly advise me of a substitute for manure in the hotbed?—W. S. McNamara, Olympia, Cal.

**Reply by George Gautier**

A SATISFACTORY substitute for manure for the hotbed is fresh grape pressings, used in the same manner as manure. They will develop an even and lasting heat; enough to make several successful plantings in the hotbed. Grape pressings still can be obtained in vineyard districts.

Many gardeners heat their hotbeds with the aid of a simple home-made steam heating plant. The outfit consists of a gas burner or jet, a boiler and several lengths of pipe. There should be enough pipe to run from the boiler around the bed and return. A common five-gallon oil can will serve as a boiler. The pipe should be fitted on one side of the can near the top. Run it around the bed, fitting the last length on the same side of the can near the bottom. As soon as the water begins to heat, circulation will commence, the water leaving the boiler at the top and re-entering it at the bottom.

After the initial cost of installing the plant the operating expense is very small. I have found this arrangement the most satisfactory as well as the cheapest and most enduring means of heating the hotbed.

THE WEED KNIFE

[illegible] the weeds below the surface of [illegible] this implement destroys them [illegible] time improves the tilth [illegible] favor [illegible] general farmers.


# Farm Hauling Enters a New Era

TODAY progressive farmers are placing old farming methods on trial. Value must be proved or the old must go. In these times of high costs the wastes of past years must fall by the wayside.

In the search for economies, the always-important work of farm hauling is being rigorously revised. On many farms, *International Motor Truck* haulage has already ushered in a new era of energetic movement—of time- and work-saving efficiency.

By this transportation short-cut, stock is marketed in less time and with less shrinkage — crops are hauled when prices are right—supplies are delivered promptly when needed—hard-hauling jobs are made easy and long trips short.

The fact that *International Motor Trucks* are the product of a concern that has a broad-as-agriculture reputation for fair dealing, good value, and the production of dependable labor-saving farm equipment, should be ample assurance that these trucks will in all cases provide low-cost hauling service.

The sizes range from ¾-ton to 3½-tons capacities and there is a style of body for every hauling requirement.

INTERNATIONAL HARVESTER COMPANY
OF AMERICA
(INCORPORATED)
CHICAGO USA

92 BRANCH HOUSES IN THE UNITED STATES

*International Motor Trucks*

FORKNER CULTIVATOR

TRACTOR OR HORSE DRAWN

"SEE IT AT OUR STORE"

B. HAYMAN COMPANY, Inc.
118-120 No. Los Angeles St. *(Since 1876)* Los Angeles, Cal.

BEES PAY

Bee-keepers can obtain from the Apiary Department of the Diamond Match Co. the finest quality of Bee-Keepers' Supplies at fair prices.

The Apiary Department, which is in charge of experienced Bee-Keepers, is one of the largest of its kind in the United States, and maintains a constant excellence of product and unsurpassed service.

Write for catalogue and if a beginner for Cottage Bee-Keeping, which will be promptly mailed free.

THE DIAMOND MATCH CO.
APIARY DEPARTMENT
CHICO, CALIFORNIA, U. S. A

## Sunflowers

### Naturally

"I dropped my watch today."
"Did it stop?"
"Of course—when it struck the floor."

### Good Business

The other day a stranger entered the Fourth National Bank and asked to borrow $5. He was told that the bank did not lend such small sums.

"But," he went on, "lending money is your business, isn't it?"

The banker admitted that it was.

"Well, I have good security," said the stranger, "and I want to borrow $5."

Finally the banker, half from fatigue and half from amused curiosity, agreed to make the loan. When the note was all drawn and the interest of 35c paid, the stranger drew from his pocket $10,000 worth of Government bonds and handed them over as security. Before the banker could express his astonishment the stranger said:

"Now this is something like it. Over at the other bank they wanted me to pay $10 just for a safety deposit box to keep these things in!"

My income tax report is filed—
And very clearly shows me
That Uncle Sam will be quite wild,
When he sees what he owes me!
—Justin Nutt.

### Avocado Meeting

ON Friday and Saturday, May 6 and 7, the California Avocado Association will hold its annual meeting at the Hotel Maryland, Pasadena. Friday afternoon will be devoted to an experience meeting, with the annual dinner Friday evening, followed by a program to be announced later.

On Saturday morning papers will be read and Saturday afternoon the regular business meeting will be held and three new directors elected.


# TENTS! TENTS!

U. S. GOV'T. STOCK

| | |
|---|---|
| 9x9 Wall Tents | $15.00 |
| 16x16 Pyramidal Tents | 32.50 |
| Shelter Tents | 3.00 |
| O. D. Wool Blankets | 4.00 |
| Silk Floss Mattresses | 2.00 |
| 9x15 Auto Canvas Covers | 7.50 |
| 11x15 Auto Canvas Covers, new | 15.00 |
| Auto Kit Bags | 2.50 |
| 12-Lb. Can Bacon | 2.30 |

This stock is Government goods and superior to commercial goods. Goods shipped promptly upon receipt of check or money order. When ordering goods sent by mail include enough to pay parcel post charges.

**M. Levin & Sons, 2201 3rd St.**
San Francisco. Phone Park 418.


Classified Ads Continued From Page 39


NURSERY TREES AND PLANTS

5000 VALENCIAS, 2000 Eureka Lemons, 3000 Mission Olives, 100,000 Fla. Sour orange seed-bed trees; 50,000 sweet orange seed-bed trees. SOUTHLAND NURSERIES, 1941 E. Colorado St., Pasadena. Phone Colorado 6352.

2000 FRENCH PRUNE ON PEACH ROOT, only 25c for fine 5-7 ft. trees. Fine condition to plant. Will ship on approval. Write for prices on other trees. J. F. Miller & Sons, Healdsburg, Cal.

CORY THORNLESS Mammoth Blackberry. Write for descriptive price list. Get your plants from the grower. Wm. Mortenson, Rt. A, Box 209, Lodi, Cal.

CUTHBERT RASPBERRIES, $12.50 per M. of $2.00 per hundred, F. O. B. Alvadore, Ore. E. P. Saunders.

TAXIDERMY, FUR DRESSING

FURS tanned, made up; game trophies mounted. Address "Parcels," H. F. Lorquin, 268 Market St., San Francisco, Cal.



# 20% REDUCTION
## on PAPEC Ensilage Cutter

LAST YEAR we asked you to compare the Papec, part for part, with any other ensilage cutter. We wanted you to really make this comparison, knowing you would realize the mechanical superiority of the Papec, if you did.

This year we ask you to compare not only mechanical advantages but price. The price of the Papec has been reduced 20%, which makes it the most profitable cutter investment on the market today.

Such a comparison is the fairest test we know. If you can find a better constructed ensilage cutter at a lower price than the Papec, buy it. We are willing to leave the matter to your good judgment.

**Papec**

*One-piece solid, semi-steel frame.*

*Elevates to the height of any silo at 600 r.p.m.*

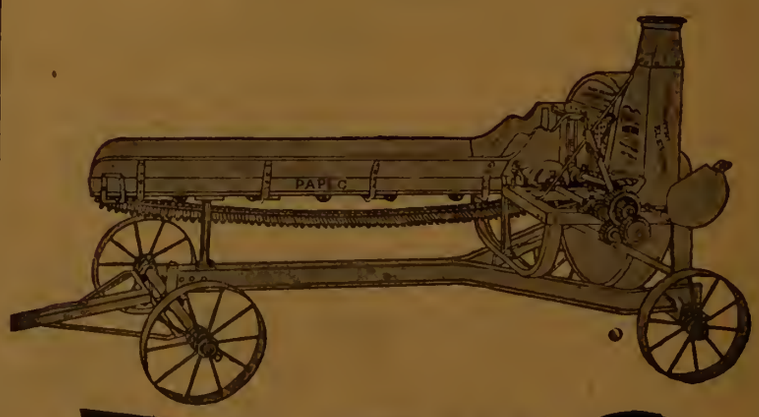
*Cuts 3 to 30 tons per hour.*

*Perfect knife clearance.*

*Six fans on the cutting wheel instead of three or four.*

*Ensilage cannot clog in the pipe.*

**Santa Fe Lumber Co.**
16 California St. San Francisco
Dept. A.




# PAPEC

*Own Your Own—It Pays*

All sizes of machines and parts carried in stock. Send for free booklet and price list.

**Western Dairy Machine & Supply Company**
Southern California Distributors
121 East Seventh Street Los Angeles, Calif.

SCISSORS HERE

SANTA FE LUMBER CO., 16 California St., San Francisco.
Department A.

Gentlemen: Without obligation on my part, send me complete information regarding the Papec Ensilage Cutter.

Name .....

Address .....

# Special Farm Paints

## For Buildings, Silos, Machinery, Wagons, Etc.—Made for Western Climate

We make special paints and varnishes with western farm needs and western weather conditions in mind.

It's vitally important that you get such paints. They must be the best that any one can make, for real economy lies only in good paint.

### Beware Cheap Paint

It costs more to rot a building than to paint it. Paint now if your buildings need it, and save money.

But use the *best* paints, for the best if properly applied will be good from five to ten years hence. Cheap paint, on the average, starts cracking in twelve months.

It's what paint covers that you want to save — not merely a few cents per gallon in *first* cost.

Cheap paint doesn't spread as easily or as far as good paint. So when you figure *labor* and *square yards* covered, cheap paint costs just as much as good paint.

Cheap paint, in practically every instance, is the most expensive you can buy.

# Fuller's
**SPECIFICATION**
# Farm Paints
**House Paint - Barn & Roof Paint**
**Wagon Paint - Rubber Cement Floor Paint**

HOUSE PAINT: Pure Prepared Paint, Phoenix Pure Paint for Painting Houses. The purest, best protection and most durable paint made. Made in 32 colors.

BARN AND ROOF: A protective coating for Barns, Roofs, Fences. Dries with a good gloss and wears. Economical in cost and dependable in quality. Six colors to select from.

PACIFIC WAGON PAINT: Adapted for repainting Agricultural Implements, Farm Wagons, Windmills. A glossy and durable finish offered in 7 colors.

RUBBER CEMENT FLOOR PAINT: A sanitary, waterproof and durable paint for floors of kitchens, closets. Attractive in color and gloss. Dries hard over night. Made in 12 colors.

Also makers of Decoret, Washable Wall finish, and Silkenwhite enamel.

**W. P. FULLER & CO., Master Paint Manufacturers for 72 years.**
Established 1849, San Francisco. Branches in 16 Cities in the West. Dealers Everywhere

## For 72 Years

THE Paints specified by Fuller are the result of 72 years' experience in the making of all kinds of paints, varnishes, etc., for western use.

We use the best materials as others do. But we combine them with a 72-year knowledge and long-time skill. Our Pioneer White Lead base is finely ground—pure white. It must pass through silk screen with 40,000 mesh to the square inch. We use special machines for mixing the materials in scientifically exact proportions. Fuller paints are noted for covering capacity, ease of spread and great durability.

If you want from five to ten year protection for your property investment, get Fuller's — western paint for western weather conditions—a paint *you know*.

## Free Advice
### on Painting

IF you cannot get a master painter, and wish to paint your home yourself, but do not know much about painting, ask Fuller's Specification Department for advice. How to treat the old paint. What color scheme to use. How many coats. The proper brushes. The best time to paint, etc.

Send photo of your house or barn with dimensions of the roof and siding, and we'll estimate the cost—without obligation.

Take advantage of Fuller *Service* as well as Fuller Paints. Write us *now*. Take steps to *paint now*. Don't let weather depreciate your investment.

## Send Coupon
### For Interesting Book—Free

Mail coupon for "Save the Surface"—a free book that tells of the importance of good paint.

We'll send also our booklet describing Fuller's Specification, Farm Paints, Varnishes, etc.

Send coupon now. Find out what good paint means to you.

**W. P. Fuller & Co.**
Dept F 513 San Francisco.

Please send me, without charge, a copy of "Save the Surface" and your booklet of farm paints and varnishes.

Name.....

Street.....

City.....State.....

# from 5 to 12

FROM five to twelve weeks—that's the time the profit-pendulum swings right or wrong, so far as growing chicks are concerned. That's the time they need momentum to help them "over the top" of their critical period.

What do these lively, hungry little fellows need most—from the time they are five weeks old until they are twelve weeks old? Do they need fat? Not so much! They need bone and muscle. They need a strong, sturdy framework on which to build your future profits. They need a good "boost" uphill.

And SUREGROW gives it to them! It contains the essential food units growing chicks must have if they are to mature into healthy, profitable chickens. It gives them the uphill lift they need—supplies the health and vigor they must have to become good layers or good breeders. It's surprising, too, how many chick troubles (such as indigestion, moping, slow growth) disappear once you get growing chicks going on this balanced ration.

This explains why more and more SUREGROW is being called into play by successful poultrymen. They have found that, just because growing chicks will eat anything, you must be doubly careful about the feed you *do* give them. Our booklet, "Makes Hens Happy," treats this feeding question in detail—gives you the advice of practical poultry experts. Your copy is waiting for you and it's free—simply cut out and mail the coupon now!

STOCK AND POULTRY FEED DEPARTMENT

**SPERRY FLOUR CO.**

STOCKTON, CALIFORNIA

**"There's a Sperry Feed for every stock and poultry need. And remember—every sack is guaranteed."**

STOCK AND POULTRY FEED DEPARTMENT
SPERRY FLOUR CO.
204 WEBER AVENUE, STOCKTON, CAL.

Please send me, without obligation, your booklet, "*Makes Hens Happy.*"

Name_____

Address_____

# ORCHARD and FARM

MAY, 1921

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*The Store with the Reputation for Good Values*

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# *"Springtime"*

*—Our Own Brand—*

# *Outing Apparel*

*We use only the very best materials in our outing garments, both for men and women, and our prices afford you a big saving in every instance—*

## *Khaki Suits, $7.90*

—Suit consists of breeches and coat, short length; made of best quality army twilled khaki in olive drab color tailored in the best of style—finest workmanship. Khaki Suit, $8.90—three-quarter length coat.

## *Gabardine Suit, $10.00*

—Medium twill material with fine wiry finish, a suit that looks very "dressy" and retains its tailored lines—made with three-quarter length coat, fitted breeches.

## *Khaki Breeches, $2.25*

—And another quality at $2.95, of medium and heavy khaki twill in olive drab color, excellently made—pockets, fitted knee, laced at front.

## *Sports Shirts, $3.75*

—Flannel shirts, $3.75; all wool serge shirts, $2.95.

## *Corduroy Suits, $11.45*

—A semi-fitting coat and fitted breeches, handsome material of rich dark brown with fine velvet nap.

## *All-Wool Serge Suit, $25.00*

—Tailored to the very height of smartness and mode—charming in fit, made of the very best quality material; coat made belted style with flare pepium; breeches reinforced at knee, front laced—a big value at only $25.00.

## *"Jack Tar" Togs, $7.25*

—A khaki dress for outing wear made middy style, with regulation collar and cuffs, sizes 16 to 22. "Jack Tar" Middies, khaki, $2.45.
—Middy Coat, $2.75 (to match khaki breeches.)

## *"Yorktown" Shirts, $3.25*

—Of khaki twill, olive drab color, buttoned down front, pockets made "Yorktown" style.

## *Moccasin Boots, $9.95*

—Are the most comfortable high-top boots for mountain climbing; they are made of fine, soft stock leather, in mahogany color, support the ankle and give the utmost ease in long hikes—you can wear them every day if you dare—12-inch boot, special at $9.95.

## *For Fishermen, etc.*

*—Creels, $2.15 to $3.30.*
*—Reels, $1.00.*
*—Rods, $1.35.*
*—Bamboo Trout Poles, $2.75.*
*—Tyee Salmon Eggs, 35c, $4 doz.*

*—"Gold Medal" Folding Tables, $5.45.*
*—Auto Kamp-Kook Stove, $6.95.*
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*—"Gold Medal" Stools, 90c to $1.25*
*—Gold Medal Cots, $4.95 to $10.95*
*—Auto Tents, 7x7, $8.95.*
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## *Khaki Hats, 95c*

—Stitched brim, a jaunty little hat to match the outfit.

## *Canvas Leggins, 95c*

—Good fitting, comfortable leggins, shaped to fit; special at 95c.
—Wool Wrap Puttees at $1.00.

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**OUR EDITORIAL POLICY**

Orchard and Farm is a magazine of, by and for agricultural people. We believe that to the tiller of the soil is due the best that life affords. We believe that he is the bulwark of the Nation. We honor him as the basic producer. His problems are our problems; his triumphs, our triumphs; his joys and sorrows, ours. To record his achievements and expose the duplicity of his enemies; to fight for and with him; to give him genuine help and practical information; to assist, entertain and inspire every member of his happy household—that is the policy of Orchard and Farm.

# ORCHARD and FARM

ESTABLISHED 1888

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"THE SILENT PARTNER OF THE SUCCESSFUL FARMER"

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**SEASONABLE SUGGESTIONS**

May is a month when there's plenty to do—a time when the buyers may try to do you. They're all very active but quite pessimistic, and may make you long for a settlement, fistic. The best way to beat these calamity boys and to know the sweet peace that your neighbor enjoys, is to join the Farm Bureau and take active part in the co-operation that wins in the mart. To toil and to sweat is just one form of—well, you'll agree, I am sure, if the stuff does not sell, the game is quite hopeless. So let's stick together and show the whole world that we needn't pull leather!—Justin Nutt.

## Pithy Paragraphs

A shining example may have a dull finish.

Our idea of the ultimate tractor is one like the letter "R"—always in repair and never out of order.

Then there is the man who says he likes to climb a carpeted stairway. It's a cheap way to get his shoes shined, he asserts.

The Honorable Secretary of Agriculture respectfully is petitioned to find a market for the wool that used to be pulled over the farmers' eyes.

Extra! We have just heard about a man who took more than $50,000 out of a ten-acre lemon grove this year. It seems that some one, a great many years ago, buried it there.

But even more interesting is the story of how an Editor accumulated a fortune of $100,000. The money was acquired by thrift, tireless industry, close attention to detail, enthusiasm for work and the death of an uncle who left the Editor $99,999.50.

Jas. C. Kneller
Editor

**HELPFUL SUGGESTIONS CONTEST**

Share in the cash prizes soon to be awarded. Write the Editor concerning your money-saving plan or home-made device for increasing profits and efficiency. Sketches or photographs appreciated, but not required. Over $150 soon to be distributed among fortunate subscribers. Send your suggestion today!

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One DAY recently an amusing incident occurred on a local train. Two of the passengers had imbibed freely of "white mule." Suddenly one of the pair clapped his hand to his head. "What time is it?" he gasped. The other man, with much exertion, searched his pockets and, finding a match box, gazed at it intently. "Thursday," he answered thickly. "Goo' by," cried his companion, rising in haste. "I've gotta get off here."

The hazards of travel are many, but they are as nothing compared with those of indiscriminate buying. In an effort to meet the demand for lower prices without sacrificing war-time profits, many manufacturers and dealers are taking unfair advantage of the buying public. On the other hand, the buyers' strike is not a weapon that will win prosperity for all. The safest plan, therefore, is to be guided by the advertising of such estabilshed, reliable concerns as those whose announcements appear in ORCHARD and FARM. Satisfy your needs by referring to this convenient index:

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**MAY COVER DESIGN**

Night irrigation, widely practiced in California, was chosen by George Grant, ORCHARD and FARM staff artist, as the subject for this month's striking cover design. The artist's conception inspired Jason Wells of the editorial staff, to write the verses below. We are sure they wil reach the hearts of thousands of our subscribers.—The Editor.

## Gratitude

*By Jason Wells*

WHEN the last long row is covered
And the night wind's gone to rest—
When the meadow-lark that hovered
Overhead has sought its nest—
Then it is a fellow lingers
Just to rest a while—and think,
And to stretch his aching fingers,
While the thirsty plant-things drink.

AS the water goes a-stealing
All about their grateful feet,
With its cool caresses healing
Every wound of sun and heat—
Then a man will dream—and ponder
On the uselessness of strife;
And he'll wonder what lies yonder
Past the mystery of life.

SOFTLY, from the shadow-spaces,
Comes an owl's uncanny tune,
Tender plants lift frightened faces
To the kindly, smiling moon.
Oh, it's then a voice is heeded
That comes whispering from the heart—
And a man is glad he's needed,
And is there to do his part.

**THE "GREEN" HAND**

*His Nibs—"This scythe won't cut."*

*The Boss—"What's the matter—has it lost its temper?"*

*His Nibs—"I don't know about the scythe, but I've lost mine."*

Which may or may not prove that he was "on his mettle." But the point is that it always pays to look sharp at all times in the matter of getting new ideas on farming. And that is where ORCHARD and FARM cuts a big figure. If you would make a wide swath in your community you cannot afford to be without the guidance and help of California's favorite farm magazine. Read this number carefully and you will appreciate the many reasons for ORCHARD and FARM'S ever-increasing popularity.

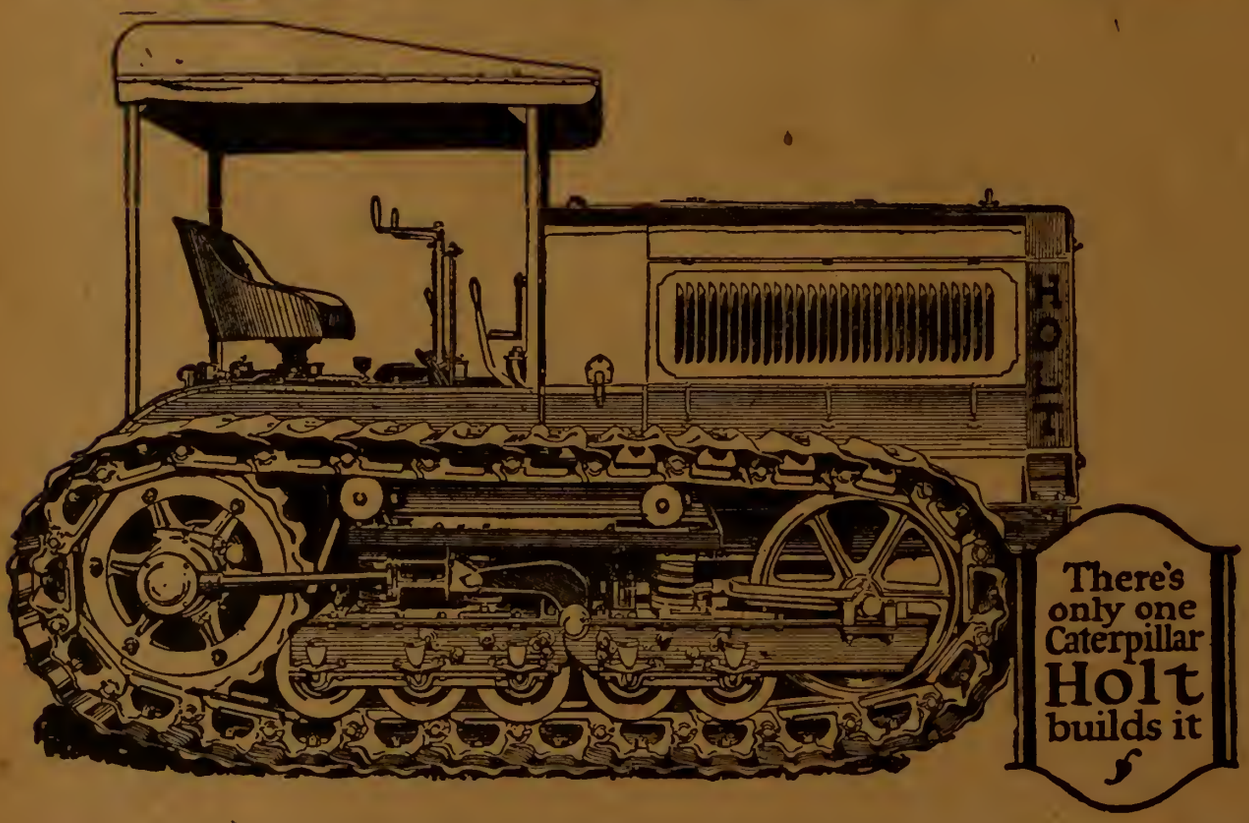
## A Creed in Twelve Chapters

(5) Thinking.—Thoughts are things. A thought is as real as a brick-bat. A thought can make us cry. A thought can make us happy. A thought can keep us awake all night. If you can use a thought for your advantage, it may be as valuable to you as a piece of money. Think! It is the people who think that "get on." Those that think keep themselves out of trouble. The more you think the more you improve your inward resources of efficiency and contentment.—Dr. Frank Crane.

# Tractor Values

## from now on, will be measured by a new and higher standard-the standard set by the

## New Western 10-Ton "Caterpillar" Tractor




A new era in tractor building is opened—a new standard of economy and performance set—by this newest Holt tractor, the Western 10-Ton "Caterpillar" Tractor. You have learned of the fame and marveled at the achievements of the famous 5- and 10-Ton models, on two continents, in every kind and condition of work. Now, in the Western 10-Ton, you have a machine particularly developed to meet your conditions.

It has liberal power—more than 60-horsepower. It has economy—its operating expense is far less than that of higher-rated tractors. It has long life and low upkeep—no other tractor can even approach the new Western 10-Ton in this respect. It is the product of Holt experience, unequalled in breadth and variety, developed along common-sense engineering lines.

If you want a tractor that is powerful, that is economical, that has wide adaptability, that is long-lived, built to the highest standards of material and construction, able to do your work, *when* you want it done and *how* you want it done, at lowest cost per horsepower hour—if you want these things, then the Western 10-Ton "Caterpillar" Tractor is your certain choice. Investigate it now, fully and carefully—the nearest Holt branch will give you complete information.

## The Holt Manufacturing Company

STOCKTON, CALIFORNIA — PEORIA, ILLINOIS

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ORCHARD and FARM

VOL. XXXIII. MAY, 1921 NO. 5

# Alaska--Agricultural Gold Mine

*ALASKA—a symbol for romance! Alaska—land of gold and cold; of sunshine and flowers; of heavenly fires, midnight sun and glittering glaciers. Truly, a name to conjure with!*

*But have you considered this vast American treasureland as an agricultural empire? Are you aware of its rich valleys and fertile soil and contented live stock? Do you know of its record grain production; its astonishing vegetable yields?*

*Even we of the Pacific shores, who claim her as our own, have not all realized, perhaps, that there is more than one kind of "gold mine" in Alaska.*

*ORCHARD and FARM, therefore, as the representative farm magazine of the Great Pacific West, assumes a pleasant obligation in giving wider publicity to the agricultural accomplishments and possibilities of America's "Farthest North."—The Editor.*

By E. J. White

Chief, Alaska Bureau of Publicity

UNCLE SAM paid to Russia $7,200,000 for Alaska, or less than 2 cents an acre, which is too much for some parts and too little for others. On the whole, however, as he usually does in dickering with foreigners, the "Yankee" got much the better of the deal.

The reader perhaps is accustomed to think of Alaska in terms of numbing cold and everlasting snow, but he should remember that the territory embraces 568,401 square miles and contains 375,000,000 acres, a mighty expanse, with many varieties of soil and climate. It is only within the last fifteen years that Alaska's agricultural possibilities have been appreciated. For many years after the attention of the white man was drawn to this country the only recognized sources of wealth were gold, fish and furs. And the struggles and hardships of the pioneers who blazed the trail form one of the most romantic and interesting chapters in American history.

Mining, fishing and "furring" still constitute three leading industries of "Seward's Folly," or "Seward's Ice Chest," as this northland, at one time contemptuously was called. But oil fields now are being exploited with success and pulp mills are making inroads on the 15,000,000 acres of known and suitable timber.

It is in agriculture, however, that Alaska is taking the most astonishing strides. Here are some figures that perhaps will surprise the average reader: Established Alaska farms in 1920 numbered 364, comprising 90,672 acres, of which more than 5000 acres was improved. The estimated value of these farming lands and the buildings thereon was $1,211,685; of farming implements and manufactures, $160,000, and of livestock (not including reindeer and fur animals in captivity), $436,700.

Of the 364 farms, 230 reported the keeping of livestock. Over 180 of these farms had horses, 67 had cattle, 56 kept hogs, while dogs (used as work animals) were reported by 74.

More than 135,000 reindeer, valued at $1,800,000, were reported, representing an increase in twelve years of over 500 per cent. Foxes were being raised on twenty-two farms.

Grain growing promises a profitable future. In 1920 just 2833 bushels was produced in Alaska and in 1920 the average and yield were more than doubled. The yield of new ground has averaged 29½ bushels per acre, which invariably is increased fully 25 per cent in subsequent years. Oats give from 60 to 80 bushels per acre and potatoes yield 80 to 140 bushels with a crop failure unknown. [illegible] these yields can be greatly increased.

[illegible] pointed out by John Rustgard of Juneau in an article written for the Alaska Daily Capital, amazing disclosures of Alaska's potential agricultural [illegible] will result from the work of the Government Experiment [illegible] maintained in the Territory by the Department of [illegible] for the past twenty years and which already have made some remarkable discoveries. Only comparatively small areas have as yet been adequately tested. Mr. Rustgard says that he [illegible] out that from 10,000 to 15,000 [illegible] have been demonstrated as admirably adapted for sugar beets.

Estimating the possible grain yield of Alaska, this same writer points out that 50,000 square miles (which is the estimated area in the Yukon and Tanana Valleys adapted to wheat, barley and oats) seeded to grain that yielded 45 bushels per acre, would produce 1,440,000,000 bushels. Reducing this yield to half, there still would remain an annual crop of 720,000,000 bushels, or almost the equal of the annual wheat crop of the entire United States for the ten years ending in 1918. And in this estimate, it is pointed out, no account is taken of the still vaster areas, which, from an agricultural standpoint, are unknown. Who can prophecy what new sources of agricultural wealth yet will be discovered? In vegetable production, too, Alaska has astounded even her most ardent admirers. W. H. Cole of Ohio, following a trip to the Territory, told of the wonderful gardens which he found, some even above the Arctic Circle. (These quotations inserted by the Editor of ORCHARD and FARM.)

"We saw gardens that might well excite the envy of the best growers in the Buckeye State," said Mr. Cole, "including a great variety of products such as potatoes, turnips, beets, rutabagas, sugar beets, carrots, parsnips, barley, rhubarb, radishes, onions, cabbage, cucumbers, peas and, in some localities, tomatoes and melons.

"We plucked a pod of peas growing on a vine six feet high, the pod being four inches long and two inches in diameter. The luxuriance of growth indicated a soil of marvelous fertility."

*An Alaskan Homesteader, His Garden and Cabin—Near Skagway*

Mr. Cole states further that as much as nine tons of potatoes to the acre have been harvested in Alaska, the tubers being of good size and excellent quality, while heads of cabbage weighing from eight to twelve pounds have been produced even in in the northernmost farming sections.

"Alaska seems to be the natural home for berries," the Ohio man adds, "not only in the profusion of fruit, but also in the great variety of species. Currants, both red and black, abound in the southeastern section, and are remarkable for the length of the clusters. Strawberries of good size and excellent flavor also are abundant."

But not only is Alaska a land of wonderful vegetables and berries; she has also myriads of delightful flowers and scores of varieties of shrubs. As in Switzerland, Mr. Cole reports, these plants bloom at the very foot of the glaciers. It is possible to gather ice with one hand and blossoms with the other, he states. The homes of the Far North dwellers are beautified with many of the 2000 species of Alaska's ornamental plants, Mr. Cole asserts in conclusion.

In subsequent articles will be discussed in ORCHARD and FARM the localities in and conditions under which certain crops may be grown to best advantage. Potatoes, for instance, do well in all parts of the Territory, but best on hill land, the valleys being too damp and the land too soggy.

They are grown on the coast in the southeastern part where (Page thirteen)

# Success With Squabs—Plenty of Profit in Pigeons, Says T. E. Berry

*OF THE many ranches visited by the writer, from half-acre rabbitries to estates measured in square miles, none has proved more interesting and none was more efficiently managed than this remarkable pigeon project, suburban to Los Angeles, on a "farm" of two acres.*

By the Editor

FEMINISTS who advocate equal division of domestic duties between husband and wife should adopt the pigeon as their mascot or official emblem.

For Pa and Ma Pigeon devote themselves with equal zeal to the business of rearing their offspring; furthermore, they never quarrel, always treat one another with politeness and consideration; and are parted by nothing but death.

Pigeons may be mated for life when less than one year old and frequently attain the ripe old age of fifteen, rearing six to nine pairs of young each year for nine to eleven years. In the event of the death of one, the other may be induced to mate again, but "divorces" appear to be unknown.

### CHANCES FOR PROFIT

There are great opportunities for profit in pigeon rearing, according to T. E. Berry, proprietor of the "Palms" Squab Ranch, of Inglewood, Cal., who is recognized as one of the most successful utility breeders of the West.

"We would welcome competition, too," said Mr. Berry recently. "Those of us who are engaged in the business of squab raising realize that greater production would make possible lower prices, which in turn would result in greater consumption. Instead of being considered a costly luxury the squab should become a regular article of diet in every home. Once educated, the public appetite would demand millions of these delicious birds annually. And even under present conditions I could sell many more than I am now able to raise. The Chinese are among the largest consumers of squabs· and of course the birds are served in many leading hotels and cafes, where they are in demand by American epicures."

### A RAPID TURNOVER

Mr. Berry at present maintains about 3000 pigeons, all of the Carneaux (Belgian) breed. He receives $7.50 a dozen for his squabs, which are marketed at four weeks, averaging one pound live weight. Poultry dealers call at his establishment and take the birds alive. It costs, according to his figures, about $3 to bring a pair of these pigeons to breeding age, while the cost of feeding averages at present prices for grain about 10 cents per head per month.

Mr. Berry requires the help of one man, devoting also all his own time to the business. In view of the active and growing market demand, he plans early expansion of his plant to a capacity of 15,000 birds. Figuring upon the basis of nine pairs of young per year for each pair of breeders, the annual production when the plant is brought to full capacity will be 126,000 squabs, of which a small percentage will be retained for replacing natural losses and for breeding purposes.

The Berry establishment is strictly a business proposition, and its owner emphasizes the fact that he is a utility, not a fancy, breeder. He does not exhibit at shows, maintaining that the show standard is not the true Carneaux type.

### CRITICISES SHOW STANDARD

"I prefer the so-called 'splashed' type, red and white, which I believe to be the true Carneaux. Furthermore, I select for market value rather than arbitrary show points," asserted the pigeon raiser. "However, I have some very interesting color variations, including a few pure white birds (for one pair of which I recently was offered $75) and one all black male. Also I have a pen of lighter buff birds."

The Berry lofts, however, are an outstanding example of concentrated endeavor. Like the poultry farm that is devoted to one breed, the Berry pigeon "ranch" pleases the eye with its uniformity and suggests stability. Mr. Berry does not believe in mixing breeds; neither is he confused in his policy, having through years of first-hand study reached certain very definite conclusions about pigeon raising. And he now is engaged in following out these ideas along scientific, methodical lines. He impresses the visitor as knowing all there is to know concerning Carneaux pigeons, although he modestly insists that he has not begun to learn.

As indicative of his close study of the birds, however, is his interesting description of their habits, which follows.

*Modern Methods in Pigeon Production*

*Here are illustrations of the Berry lofts, taken with the ORCHARD and FARM camera. Above is shown front view of the flying pen. Small arrow at right indicates drinking trough, reached from the nesting-room at rear through the small upright slats shown. Two small arrows at left show perches. Lower view shows the alley separating nesting-room and flying-pen. Large arrow above indicates passage-way for birds. Large arrow at lower left shows another view of the drinking trough; lower right, the bathing trough at the outer edge of the flying-pen. The cut at bottom of the page gives a good idea of the arrangement of units radiating from central buildings. Present capacity, about 3000 pigeons.*

## The Interesting Habits of Pigeons

"I DO not mate the birds before they are eight months of age. They could be mated sooner but are healthier and more prolific if this rule is followed. Individuals are selected from the separate pens in which the young males and females are confined and placed together for a few days. Then comes the 'driving period,' as we call it, when the male ardently (and frequently in 'cave-man' style) carries on his wooing.

"Next comes the 'billing and cooing' period, when love is ruler of the roost. And immediately the male commences to gather nesting material, which the female arranges to suit her very particular taste."

The material used at the Berry ranch consists of tobacco stems, which prevent infestation with mites and lice. This is an example of the thoroughness with which details of management have been worked out. Continuing his description of the habits of the birds, Mr. Berry said:

"Late during the afternoon after the nest is arranged the first egg is laid, and late the next afternoon the second egg. Only two are laid each month.

"The hen remains on the nest until exactly 10 o'clock the following morning, which does not mean 9:45 or 10:15. Then she leaves the nest and goes to the 'fly-pen' (or open, netting covered pen), where she bathes in the trough provided for this purpose.

### MALE BIRD TAKES TURN

"The male bird takes charge of the eggs during her absence, remaining on the nest until exactly 4 p. m. Then she returns, bows politely once or twice, rewards her faithful spouse with a kiss, and releases him from duty until 10 the following morning, when the performance is repeated.

"The incubation period is two weeks. And after the young are hatched, the interesting partnership continues."

Mr. Berry called attention to a remarkable attribute of the pigeon. Both the male and female birds, he asserted, secrete, in a gland near the crop, a kind of milk, which is fed the young by the process of regurgitation. The fledglings subsist on this "pigeon milk" for one week, after which the female commences to feed small grains selected from the ration, such as milo, kafir corn and wheat.

"At the end of the second week," Mr. Berry continued, "both birds commence the feeding of varied grains and keep the crop of the young stuffed at all times. The growth is remarkably rapid, the Carneaux squabs attaining a weight of one pound at four weeks.

### WHY CARNEAUX PREFERRED

"That is one reason why I prefer the Carneaux. They are uniform producers of rapidly maturing squabs. Other breeds may give a heavier squab but it matures more slowly and consumes more feed, while it is not as much in demand as the 'handy weight' which dresses out to about eleven ounces of edible meat and makes a nice dish to serve individually.

"Normally the male bird would assume at this point the duty of teaching the young to care for themselves, as the female would have reached another laying period. But we now remove the

(Continued on Page 11)

# *Tractor or Horse? Has the Engine Made Good? Is Dobbin a "Dead One?"*

## Horses Are Supreme in Field Work

By Wayne Dinsmore

SECRETARY, HORSE ASSOCIATION OF AMERICA

(Continued from April Number)

## Why Tractors Are Displacing Horses

By A. M. Sedgwick

OF THE AVERY CO., MFRS. OF TRACTORS AND MACHINERY

(Continued from April Number)

[EDITOR'S NOTE—THESE ARTICLES ARE NOT SUBMITTED AS A JOINT DEBATE, BEING PUBLISHED SIDE BY SIDE MERELY BECAUSE OF THEIR CONTRADICTORY NATURE.]

FIGURES on the cost per horse per day frequently are as badly distorted as the tractor costs, only in the other direction. For instance, it is assumed that a man will not plow over five acres a day with two-bottom gang plows; but farmers know that men using five good horses or mules on two-bottom gang plows can be depended upon to turn over six acres per day every day in the week. So that, even if we assume only five-horse outfits on two-bottom gang plows were used, it will take three men with fifteen horses or mules to plow eighteen acres per day. Allowing $3 per day per man we have a cost of $9 instead of $10.50 for the men.

A five-year study of feeding made by the Department of Farm Management of the University of Illinois shows that grade draft horses under ordinary working conditions on farms require per year:

| | |
|---|---|
| Corn, 25.3 bushels at 90 cents per bushel, total (Barley can be used in place of corn and will cost less in California.) | $ 22.77 |
| Oats, 37.8 bushels at 60 cents per bushel, total | 22.68 |
| Hay, 1.7 tons at $25 per ton, total | 42.50 |
| Pasture, 1.96 acres, with 170 days' access at $15 rent per acre, total | 29.40 |
| Total feeding cost for one year | $117.35 |
| Credit, value of fertilizer* | 39.00 |
| Annual cost of feeding work horse | $ 78.35 |

Under California conditions, the fertilizer is worth more than $3 per ton, as is shown by the fact that thousands of fruit growers are paying more than [illegible] is for it and hauling it from fifteen to twenty miles. But in view of the fact that forage costs somewhat more on the Pacific Coast than it does in the Central West, to be absolutely fair, we will increase the cost per horse per year to $100.

The average number of hours worked by horses and mules, as reported by the Illinois Experiment Station from their actual cost studies covering five years, amount to 928 hours per horse per year, although many of the better managed farms secured more than 1000 hours per horse per year.

If we take the average, however, of [illegible] hours per horse per year and the cost of $100 per horse per year, we have a cost of approximately 10.8 cents per hour, or a cost of $1.08 per horse per [illegible] day. Each five-horse outfit [illegible] $1.40 per day (in horse or mule [illegible]) or the three outfits $16.20 [illegible] instead of $28 per day which [illegible] friends cite as the cost of [illegible] three such outfits.

[illegible] total cost, therefore, will be [illegible] acres, or $1.40 per [illegible] of the $2.17 cited as the [illegible]

[illegible] Association of America has [illegible] that a 1600-[illegible] fertilizer [illegible] a [illegible]

cost of plowing with horses. The contention that it costs $3000 per year to keep five teams is misleading, as shown by the amount of feed one horse requires per year in the table just given. These amounts are deduced from the records of the Illinois Experiment Station and their surveys covered five years' observation of working horses on Illinois farms. According to the tractor enthusiast's figures, it costs $300 to keep one horse one year, which is exaggerated 300 per cent.

It may be urged by tractor advocates that we have not taken into account anything but feed, leaving out interest, depreciation, care, etc. This is because feeding expense constitutes 72 per cent of the total cost of keeping horses—according to the detailed records kept by the Illinois Experiment Station—and depreciation need not enter into the farm costs if farmers handle their animal power intelligently, breeding enough mares to rear their own replacements, or buying young horses, working them two or three years and selling them before depreciation sets in.

The contention that man power is saved by the use of tractors likewise is open to criticism. The tractor survey referred to says: "Relatively little saving in man labor was effected by the tractor." Saving of man labor is not so much a matter of horse or tractor use as it is a matter of using large implements with plenty of power. In some localities the use of large implements and teams of ten or twelve horses is quite common; in others two to four horses are most common. The year book of the Department of Agriculture says: "This may, of course, be due to the difference in farm type,

(Continued on Page 32)

"A COST account was kept on our first cultivation in young cotton running at slow speed for careful work," writes the Pima Cotton Company of Arizona. "The following are maximum for fuel and oil and minimum for work actually done:

| | |
|---|---|
| Fuel, gasoline, 7 gals. at 25c | $1.75 |
| Oil (a very liberal allowance) | .25 |
| Operator | 3.50 |
| Average day's work 12 acres | |
| Average cost per acre | .46 |

Cost with one-row, two-horse cultivators:

| | |
|---|---|
| Feed one span mules | $1.38 |
| Teamster, per day | 3.00 |
| Average day's work 6 acres. | |
| Cost per acre | .73 |

"A comparison of the two will show a saving of twenty-seven cents per acre, or $3.24 per day. A total of $19 was spent during the season for upkeep and repairs on the two machines.

"The investment in equipment doing the same amount of work would be two cultivators, two teams (mules or horses), two sets of harness, which amount to approximately the money invested in the motor cultivator."—Pima Cotton Company, By Alex T. Nelson, Supt., Arizona.

Another reason why tractors are displacing horses is because bigger crops result from the use of tractors. Only a tractor can give the economical power needed to increase crops, to get the best seed bed, to take advantage of weather conditions, to enable one man to do the work of several.

This means lower costs, bigger crops and greater enjoyment in farm life. One Kansas farmer reported that he believed the increase in the size of his wheat crop resulting from early and deep plowing would pay for his tractor in one year. Another farmer from the same State said that his tractor did pay for itself in increased production the first year.

A Texas wheat grower formerly used mules. He bought a tractor, and here is what he says: "I plowed early last fall, plowed deep and made more wheat. I plowed nights and got through quicker. I ran my tandem disc at the right time and drilled at the right time and the grain came up at the right time. I sold more mules than the tractor cost. I plowed 1400 acres of wheat, disked it and sowed it, threshed it and hauled it off with trucks. I never hitched up a mule and made more money than my neighbors did with mules."

Still another item appears in favor of tractors, namely, that the psychological effect on the farmer's son and hired man is of inestimable value. It is a fact that the use of a tractor does have a wonderful effect in bettering the state of mind of the son or of the hired man. Cleaning stables, currying horses and feeding them is a drudgery compared to feeding gas and oil to a tractor or doing a little service work on it. A feeling of resentment against horses is held by the usual farm hand unless he is a great lover of horses—seldom true. The whole view of farm life changes with the introduction of modern power machinery.

Power farming makes it possible to get more out of farming than hard work. It means daylight farming—being able to do more in less time—to speed up results and allow more leisure for the worth-while pleasures of life. Jumping out of bed in the early morning hours to feed, curry and harness horses, and doing all the necessary chores connected with the same sweaty herd at noon and at night is tiresome work and steals many hours, but adds nothing to the final net income.

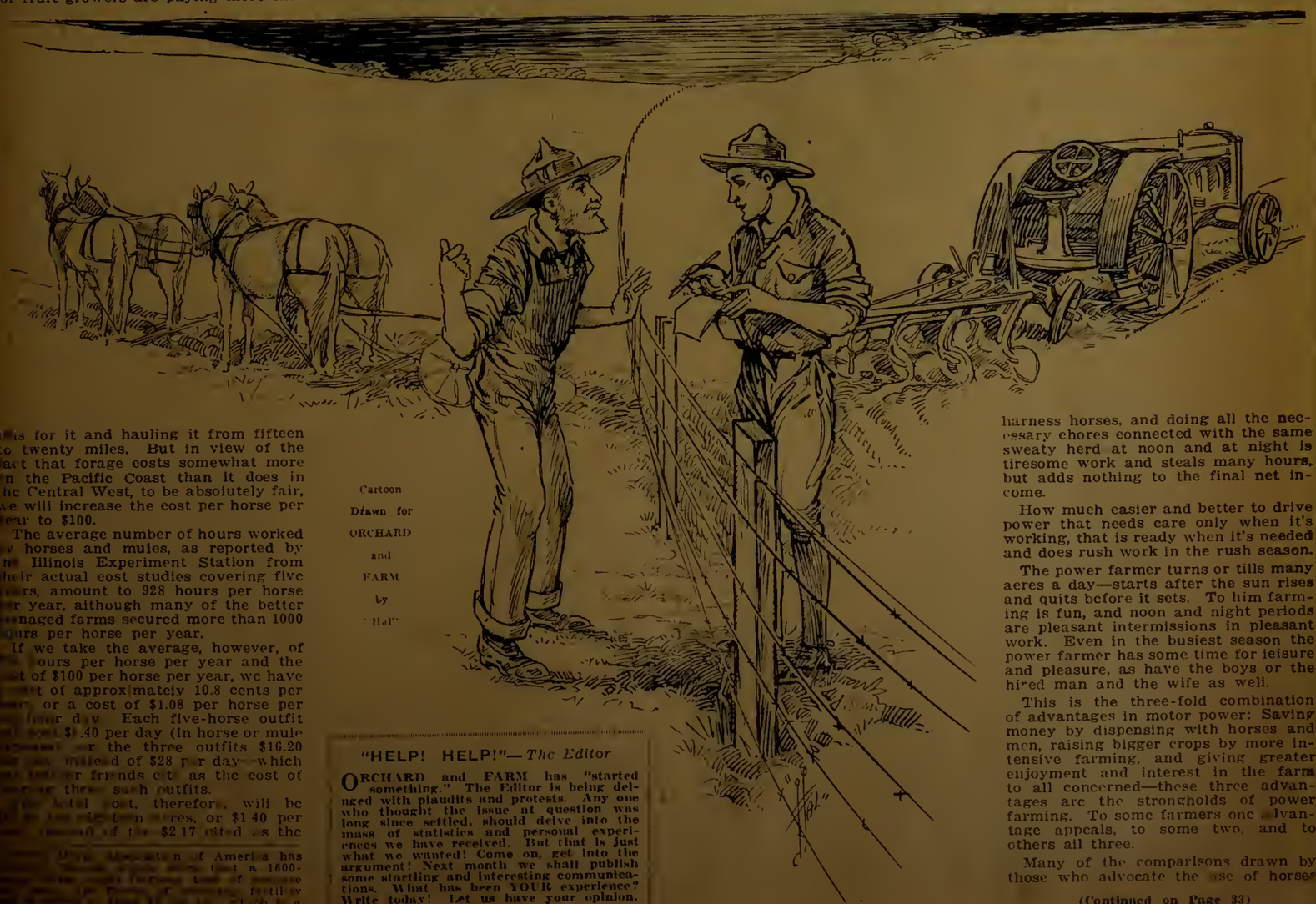
How much easier and better to drive power that needs care only when it's working, that is ready when it's needed and does rush work in the rush season.

The power farmer turns or tills many acres a day—starts after the sun rises and quits before it sets. To him farming is fun, and noon and night periods are pleasant intermissions in pleasant work. Even in the busiest season the power farmer has some time for leisure and pleasure, as have the boys or the hired man and the wife as well.

This is the three-fold combination of advantages in motor power: Saving money by dispensing with horses and men, raising bigger crops by more intensive farming, and giving greater enjoyment and interest in the farm to all concerned—these three advantages are the strongholds of power farming. To some farmers one advantage appeals, to some two, and to others all three.

Many of the comparisons drawn by those who advocate the use of horses

(Continued on Page 33)



Cartoon Drawn for ORCHARD and FARM by "Hal"

### "HELP! HELP!"—*The Editor*

ORCHARD and FARM has "started something." The Editor is being deluged with plaudits and protests. Any one who thought the issue at question was long since settled, should delve into the mass of statistics and personal experiences we have received. But that is just what we wanted! Come on, get into the argument! Next month we shall publish some startling and interesting communications. What has been YOUR experience? Write today! Let us have your opinion.

# The Lure of the Western Berry

*BELIEVING that our many Oregon and Washington subscribers as well as readers in California, would appreciate authentic and practical information on berry-culture, we have arranged for the publication of articles prepared especially for ORCHARD and FARM by an authority. Professor Stahl has made an intensive study of the berry industry in those sections of the Northwest where it is most important. His articles are written in such manner as to answer all the questions of the novice and at the same time interest the experienced producer.—Editor.*

By J. L. Stahl

Horticulturist, Western Washington Experiment Station.

SOME of the most popular and pleasing stories of the day are told in well-written advertisements or brightly colored pictures. Such a picture may show long, well-trained berry rows loaded with luscious fruit waiting for the harvest. It may tell the story of raspberry or loganberry growing in a natural environment. Another may give an insight into the clean, shiny kitchens where delicious jams are cooked or the cooling juices pressed from these most delightful of all fruits.

Each picture in itself is enough to give the average man visions of a little farm in the "Land of Plenty," where he can forget the four walls of a stuffy office or shop and the noise of a busy street. It is enough to entice him from his work, his friends, and his accustomed manner of living. Is it any wonder that he sells out his business and invests in a few acres of land in the "Valley in the Shadow of the Mountain" or some other favored and well-advertised berry district, where he can shed his stiff collar and creased trousers for an open-necked shirt and a pair of patched overalls?

Such a man usually makes good. But he has had little or no experience in the new undertaking and needs more help than is given in the colored picture or the colorful advertisement. He needs to know the fundamentals of berry growing. Many questions confront him, among which are: The future of the business; locations and soils best for a plantation; planting distances, and many other details in connection with growing.

The exceptionally high prices paid for berries during the past two seasons have brought about the establishment of many new plantations. And no doubt many growers will be discouraged when the inflated prices for the fruit drop to a more nearly normal level.

Other growers will "stay with it" and win out, even though the returns are considerably less. Two years of lowered prices will greatly reduce the number of land investors and land boomers. This will be fortunate for the berry business and will make possible a sturdier growth.

To look into the future requires some knowledge of the past. The earlier berry growers produced and marketed their crops locally, according to the demand for fresh fruit. As the demand increased, they enlarged their plantations and reached out to more distant markets. For a select trade in middle western cities, express shipments were made in pony refrigerators and iced cars. The berries for this purpose were picked before entirely ripe. To save the surplus soft berries, it was necessary to establish canneries. During the past ten years pre-cooled cars have been brought into use for shipping berries long distances. Still later came the practice of putting soft berries with sugar into barrels for future use. The barrels are kept in cold storage and when needed the fruit is used for jam making or soda fountain juices.

Present indications are that the demand for western berries will increase and well established canning concerns have enlarged their plants.

## Factors Applying to All Berries

**LOCATION and Soil**—In choosing the environment for berry growing, important features to consider are: (1) Good drainage, (2) available moisture during growing season, (3) freedom from severe frosts and (4) absence of winter weeds. (Successful growers in every locality usually will know of the frosty areas near them and will be glad to give this information to the beginner.) It is well to consider the possibility of finding a good outlet for the fruit, such as a cannery, drier or fresh market.

Proximity to a popular market, advantages that will appeal to desirable pickers and quick transportation, so that the fruit may arrive in good condition, are factors worthy of serious consideration.

**Preparation of Soil** — On newly cleared or raw land it is best to enrich the soil and work it well for a year before planting. This can be done by making a heavy application of manure, followed by a cultivated crop. The manure will improve the fertility of the soil and the cultivation will help rid the surface soil of roots and ferns or other growth. If setting is to be done in the spring, the manure may be applied to the land the previous fall, so that it may become incorporated with the soil during winter.

Where manure is not available, clover, peas or vetch may be grown for one or more seasons and plowed under as green manure.

Before planting, the soil should be well prepared by deep plowing and thorough working until it is free from lumps.

Sod land, where berries are to be planted, either should be plowed the previous fall, in order that the sod may rot, or planted to a crop such as potatoes or corn a year before the berries are set. Berries planted on newly turned sod are apt to dry out during the first summer unless watered, and grass between the plants in the rows is very troublesome.

**Cultivation and Fertilizing**—Cultivation should begin as soon as the plantation is set, and should continue throughout the growing season. The surface of the soil should be kept loose and fine between the rows and between plants in the rows. This will require both horse and hand labor. Where winter rains are heavy it is a good plan to plow the soil toward the plants in the rows during early fall. This leaves a dead furrow midway between the rows, which permits better surface drainage. Fine soil, thrown between the plants by the plowing, helps to control winter weeds. Early the following spring, before the canes come in leaf, the field is replowed and furrows thrown away from the plants. The plants are left on a ridge of earth, which should be leveled off with a hoe soon after plowing. Shortly after the spring plowing cultivation should begin, and continue throughout the growing season. All plowing near the plants should be very shallow, but may be deeper midway between the rows.

Animal manures are the best fertilizers, and where available should be applied to the field in the fall. Where the cane growth is very heavy it is a good plan to add 200 or 300 pounds of superphosphate, and possibly some potash, after the first cultivation in the spring. When manure is not available a winter cover crop of rye and vetch may be seeded in the early fall and plowed under for green manure the following spring, as a substitute. Or a ready mixed commercial fertilizer, from 400 to 700 pounds per acre, may be used on many berry fields with profit.

Such fertilizer should contain about 2 per cent of nitrogen, 9 or 10 per cent of phosphorous and 2 per cent or more of potash. It is best to divide this fertilizer into two or three parts and apply at intervals of a couple of weeks during the early growing season in spring.

Fertilizers applied to berries just before or after planting should be spread near but not in contact with the plants. After a field is one or more years old, the feeding roots have extended out a considerable distance from the plants. It is best then to spread the fertilizer between the rows rather than close to the plants. It will be just as available to the roots, with less danger of inducing weed growth in the row where hand labor is necessary.

"MAMMOTH BLACKS"
The Mammoth Thornless has displaced common and inferior varieties in many parts of the West. It possesses very desirable qualities.

Every Farm and Home Should Have Its Berry Patch

## Strawberry Growing Suggestions

**THE strawberry producer** should avoid regions susceptible to late spring frosts. Winter weeds also are very undesirable.

Strawberries like best a sandy loam soil, but often will thrive on gravelly land or quite heavy clay. Soils which dry out early in summer may grow strawberries when they will not be suitable to other types of berries, for the strawberry produces its fruit earlier than most other plants. Where irrigation is practicable, of course, the moisture in the soil can be controlled and regulated in accord with the needs of the plants.

**Propagation of Plants**—New plants of strawberries are produced by runners of the parent plants. Last season's runners are preferable to older plants. Plants from runners nearest the parents are older and have better established root systems and, therefore, are more desirable than those rooted later.

**Planting Pointers**—Strawberry plants can be set almost any time, from fall until spring, that the soil may be put in good condition. In soils that are apt to "heave" and injure the tender roots, spring planting is more desirable. The plants may be grown in narrow matted rows or in hills. The hill system is more commonly used in the Northwest. In commercial fields the plants usually are placed from 12 to 16 inches apart in the row and the distance between rows is from 30 to 36 inches. In the home garden they are often grown closer. About 12 000 plants are required to set an acre. [Editor's Note—In the South, where irrigation is practiced, the "ridge" system of planting in rows is employed almost exclusively.]

A short-handled hoe is a good planting tool, and a careful, industrious man on his hands and knees is the best setting machine that can be used. A good man will set about 4,000 plants in a day. Plants should be set so that the crown (juncture of root and top) is at the surface of the ground. The rows may be kept straight by the use of a line, or they may be marked off with a marker.

Varieties of strawberries most popular in the Northwest are: Marshall, Clark's Seedling, Oregon and Gem Dollar. Of these, the Clark's Seedling is most desirable for all purposes, but does not thrive or bear abundantly in all sections. The Marshall is hardier and more prolific, and will thrive under more adverse conditions, but is less desirable for canning or [illegible]

(Continued on Page 35)

# Weldon's Timely Orchard Tips

By George P. Weldon
CONTRIBUTING HORTICULTURAL EDITOR
Pomologist, Chaffey Junior College of Agriculture

## How Many Times Is It Necessary to Spray for the Control of Codling Moth?

THE title of this article is a question frequently askcd and one difficult to answer. Codling moth, the most serious pest of the apple grower, continues to take its toll of wormy fruit each season, the pear as well as the apple suffering damage from its attacks.

George P. Weldon

Orchardists growing these fruits have become well drilled in the practice of spraying for the protection of the calyx, and there are few who neglect to apply the arsenate of lead as the blossoms have practically all fallen from the trees.

The later sprays, however, cannot be timed so easily. While no one can lay down a definite rule that will serve as guide in every case, the general proposition may be stated thus: The number of sprays necessary will depend upon the abundance of codling moth in the orchard in the beginning of the season.

The pest winters in the orchard in the larval (worm) stage. If there is an abundance of the larvae to be transformed into moths in the spring, then the first generation coming from eggs laid by the moths also will be abundant and difficulty may be experienced in sufficiently reducing the numbers.

### NUMBER OF SPRAYS

Worms attacking the fruit as it becomes well grown may do serious injury, even though the numbers escaping the poison are relatively small in comparison to the total infestation. If codling moth is so abundant that in the event no spray was applied for its control 50 per cent or more of the fruit would be wormy, the situation will require at least three applications for effective control.

If, however, failure to spray would result in not more than a 25 per cent infestation, it is probable that the calyx spray would be sufficient. Between 25 and 50 per cent infestation might be considered a condition requiring two applications.

The difficulty of judging by this rule lies in the fact that progressive orchardists spray annually, and therefore cannot judge as to what percentage of the crop would be infested if not sprayed. Yet often there are a few trees that are not treated, and from these may be gained a good idea of the infestation that would result generally throughout the orchard.

The number of applications naturally will depend upon the abundance of the pest in the orchard, for when there are three worms making the attempt to enter every apple a larger number will succeed than when there is only one on an average trying to enter every third apple.

## Thin Peaches as Soon as Danger of Drop Is Past

EVERY fruit grower is desirous of securing maximum production from his trees. This desire often reacts against the practice of thinning the fruit—a practice which results in better quality at the expense of quantity. As the monetary value of a crop is more dependent upon quality than quantity, the farmer should be up to the highest standard.

[illegible] fruits grown, none responds [illegible] thinning than the peach, and [illegible] of the fruit are practically [illegible] to its [illegible] work, if not [illegible] rather carelessly and inefficiently, and the results therefore are more or less indifferent.

Peaches should be thinned whenever the setting of fruit is so heavy as to overload the tree or to interfere with the development of satisfactory sizes. The earlier the work is done the greater will be the response in growth of the fruit left on the tree.

After the pit hardens it is too late to thin for best results, but care should be exercised that the fruit is well set and the danger of drop over before the work begins. Growers are in the habit of speaking about a "June drop," but in California the dropping of fruit, if serious, generally takes place much earlier than June and thinning should not be delayed until that time.

### HOW TO JUDGE

An examination of fruits after the jackets have been shed will give a good idea of the prospects. Fruit that is large, firm and strongly attached is apt to "stick," while small, off-colored and slightly flabby fruit will drop.

Rules for thinning are difficult to formulate. The novice always will leave too many peaches. Spacing to distances of from three to six inches apart may be necessary in cases of a uniformly heavy setting; in other instances it may be necessary to leave two or even three peaches in a cluster. All fruit damage by thrips, twig borer, etc., should be removed. Thinning heavily is the only safe general rule to follow.

## Pear Blight Season Is Here

EARLY spring is the critical time for the pear grower who lives in a section where the dreaded blight occurs. It is during the early growing period of the tree that the disease is most virulent and a rapid spread throughout an entire orchard may be the result of failure to apply remedial measures promptly when the disease first appears.

Since the distribution of pear blight is due very largely to insects, the control of certain species may be an important factor in checking its spread. In general, inoculation is from insects of three different classes with respect to the point of attack; first, those which feed in the blossoms; second, those which feed in the foliage, and, third, those which feed upon or under the bark. In the case of the first class, which includes the bees, numerous flies, thrips and other nectar or pollen feeding insects, little can be done to control them except in the case of thrips. These are pests of first importance in some sections, where spraying becomes a necessity.

### THE LEAF FEEDERS

Among the leaf-feeding insects are the aphids or plant lice, which sometimes become abundant in the early spring. These have been known to spread the disease wholesale throughout an orchard. Mites of various species also may infest the foliage and cause spreading, through infection of "feeding punctures." Of the bark-feeding insects the most dangerous are the borers. Everything should be done to prevent a bad infestation of these pests, which always choose the weak trees for their attack.

Another insect pest that should be guarded against in the pear orchard where blight is present is the ant. By crawling over blighted areas of bark on the trunk ants gather on their feet germs which cause the disease and deposit them in the blossoms, from where infection may be spread by various insects feeding in the bloom.

Control of insects, while important, must not constitute the only effort on the part of the grower to combat blight. Vigilance exercised constantly in the location and removal by pruning of infections as they occur is essential.

## Injury by Peach Twig Borer Can Be Prevented by Spraying With Lead Arsenate

THE peach twig borer is a little pest, which, because of its method of attack, is very much like the codling moth or apple worm. However, unlike the latter insect, it attacks the twigs as well as the fruit and therein lies the reason for successful control with arsenate of lead.

After the growth of peach trees has started in the spring the tiny worm or larva of the peach twig borer moth leaves its winter quarters in crotches of the tree and partakes of the tender, succulent growth at the tips of the twigs. It is so particular that it feeds only upon the tender portions, going from one twig to another, and taking from each the choicest part.

Its appetite for succulent sprouts is no greater than that for peaches, into which it burrows later in the season, thus adding to its reputation for destructiveness.

### METHOD OF CONTROL

While in its winter "house" in a crotch of the tree this insect readily succumbs to a spray of lime sulphur, usually applied full dormant strength as the buds are swelling. Sometimes the orchardist fails to apply the lime sulphur spray, perhaps because he is new in the business and does not know its value, or is negligent.

In either case the twig injury may make its appearance about April 1st, lasting well into the summer. In such event a thorough spraying with lead arsenate at the strength of three pounds paste to fifty gallons of water will provide a fatal dose for every worm that partakes of any portion of a twig that has been treated.

Last season this treatment was administered to a young peach orchard which was being seriously injured through a checking of the new growth and perfect control was accomplished. Owners of young peach trees would do well to watch for this pest, which may seriously interfere with the growth of the trees unless checked by means of the suggested treatment.

## Nicotine Sulphate as a Summer Spray

THE fact that nicotine is a virulent poison seems to be borne out by its effect upon plant lice (aphis) and many other insects, which succumb from its application in the form of a spray. The common form of nicotine used in killing insects is a sulphate.

Many readers will know of the common form called "blackleaf 40," but would not recognize the term "nicotine sulphate." However, blackleaf 40 is nothing more than a combination of nicotine and sulphur, which, as its name implies, contains 40 per cent of the pure nicotine poison.

So strong is this solution that one part in 1200 parts of water will kill rose aphis, cabbage aphis and all kinds of aphis that feed on trees or herbaceous plants. Since all insects are more or less protected by cottony or oily secretions, nicotine sulphate and water alone may not bring the desired results, while the addition of a little soap to increase penetration will produce satisfactory results.

Not only is nicotine sulphate effective in controlling soft-bodied insects such as the plant lice, but various kinds of caterpillars also may be destroyed by it. It is especially effective in killing them in their younger stages, the mature larvae becoming more resistant.

Canker worms and cabbage worms are examples of larvae that can be killed by means of this spray. The superiority of the nicotine sulphate materials over the various forms of oil emulsions, such as kerosene emulsion, now is recognized by entomologists everywhere, and nicotine has become a standard and exceedingly popular form of contact insecticide.

The latest development in this material consists of a very fine dust called "Nico Dust."

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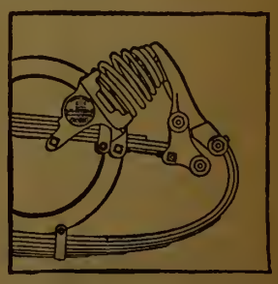

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Follow instructions and every gopher on your place will be gone — or your money back. What greater proof of its merit could you want? You don't have to suffer from gophers any more. You can kill them SURE.

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## Don't Delay

Don't tolerate gophers any longer. Fill out coupon and mail. For just $5.00 we will send you enough Reefer's Gopher Toxin to clear 25 acres of gophers. Send for it! Try it! You run no risk. Your money back if it fails to kill every gopher on the land where it is used.

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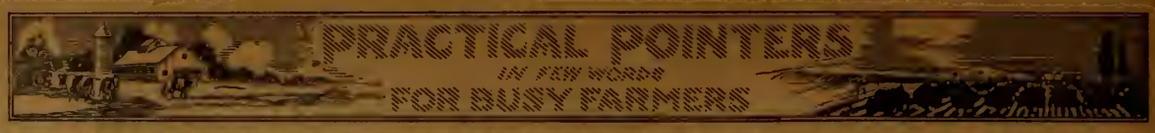
Kansas City, Missouri

I accept your offer. Enclosed find $5.00 for one package of Reefer's Gopher Toxin. You agree to refund ny money if I'm not 100% satisfied.

*Name*

*Address*

Canadian Address: Fort Erie, Ontario


**Cause of Animal Tuberculosis**—Tuberculosis, one of the worst scourges, thrives best in damp, low, dark, unventilated stables. Light, dry, airy quarters and clean barnyards or paddocks are essential to the health of farm animals. A herd started free from disease and kept under sanitary conditions is unlikely to develop disease.

**Roadside Selling Brings Big Profit**—In spite of the heavy sales of farm products through stands along the California roads, many producers do not take advantage of their opportunities in this line. Particularly is it profitable when the children can be interest in the project, which is easily accomplished by giving them a small percentage of the proceeds. This takes out of the hands of the busy farmer the nuisance of attending to customers, and reduces the overhead expense. The increasing use of the automobile has created a tremendous market at the farmer's door. Are you making the most of this opportunity?

**"Nicodust" for Truck Crops**—Nicotine sulphate having proved effective in destroying the walnut aphis, experimenters have been using it with remarkable results on vegetables and field crops. It was found that for melon aphis about 5 per cent of the poison was required; that is, 5 per cent of the 40 per cent nicotine sulphate, mixed with kaolin. The most satisfactory type of machine for applying the dust was found to be a hand-operated bellows blower, with which one man can cover two acres of melon plants in a day, using 50 pounds of the mixture at a cost of about 12 cents a pound. Cabbage aphis succombed to a 6 per cent mixture. Pea aphis, onion thrips and cucumber beetles all were destroyed. Details of treatment of different vegetables are continued in Circular No. 154, obtainable upon application at the Division of Publications, United States Department of Agriculture, Washington.

**Big Fruit Yields**—In a recent contest Miss Lanie May Wilbur of Sutter County won several prizes for large fruit yields, including 15 tons and 1862 pounds to the acre from a 22-acre, six-year-old Tuscan cling orchard. This crop brought a check for $35,200. Phillips clings planted in 1914 brought more than $2000 an acre. Study of the methods of the prize winners in the contest indicated the value of the long pruning system, good cultivation, two sprayings per season and above all, fall irrigation. When it is considered that the usual yield of canning peaches throughout the State is six to eight tons an acre for full bearing trees eight to ten years old, these results appear all the more remarkable. Every hole was blasted at the time of planting so as to shatter the subsoil and give the young trees a good start.

**Dehydration of Spinach** — Spinach growers of the Willamette Valley, Oregon, are planning to increase their acreage greatly this year, according to Sidney E. Vincent, who also states that the development of the dehydration industry has meant a great deal to these producers, and that powdered spinach produced by Oregon dehydrators has proved highly beneficial in the feeding of children. This powdered product, in combination with orange juice, experiments showed, gave an ideal food, containing iron and other elements necessary to the building of bone and tissue. It is said that the powdered spinach is not subject to infection with botulinus, the organism which has caused so many deaths from food poisoning. As a result of the tests in feeding infants it is expected that dehydrating companies will greatly increase their capacity, with resulting profit to the farmer growers.

**Oil and the Tractor**—Reference to the instruction books of ten leading tractor manufacturers emphasizes the importance of the lubricating oil. One authority states that nine-tenths of owners' troubles are traceable to the use of unsuitable oils and greases. One emphasizes the importance of quality as compared with first cost. Another lays stress upon accurate measurings, so that there is always sufficient oil in the crank case. The best oil is always the cheapest, another maker states, while still another urges greater attention to the selection of the proper grade and type for each kind of engine. "Any old oil will do" is a phrase that has brought about the ruination of many good tractors.

**Vaccination for Roup and Chicken Pox**—Experiments in California and elsewhere indicate encouraging results from poultry vaccination, leading to the belief that complete immunity from these diseases can be attained. In the California Farm Bureau egg laying contest, vaccination was resorted to successfully, following the outbreak of chicken pox in the experimental flock. No detrimental effect on egg yields was shown. About 650 birds were vaccinated in a little over three hours. It was found that the disease spread from one pen to another only through wire partitions and not where there was a board partition, indicating that direct contact is the only means of spreading the pox.

**Bud Selection and Deciduous Fruits**—While advocating bud selection as of assistance in holding true to type varieties of deciduous fruits, E. B. Babcock of the University of California asserts there is no evidence to indicate this practice will produce superior trees simply because the parent stock was superior. "We should not make the mistake," he says, "of expecting to develop a super-yielding apple, peach or plum orchard from super-yielding parent stock. Simply because bud selection has given such good results with citrus fruits is no reason to conclude similar results will be obtained with deciduous fruits." Mr. Babcock compares deciduous trees with certain insects as to frequency of mutations and concludes that from 4000 to 16,000 trees might have to be tested in order to discover one that was truly superior. He criticizes nurserymen who represent stock grown from known high-producers as capable of furnishing orchards that will yield more than those grown from first-class stock of healthy trees that are typical of the variety. "The mere fact that bud selection is practiced is not sufficient to warrant claims of special or unusual merit in nursery stock," he concludes.

**Management of Young Chicks**—The period after the baby chick has begun to shift for himself is one of the most critical in poultry raising. At this time the young birds must not be neglected. The chief essentials to their successful development are. Good, roomy coops or houses, cleanliness, proper feed and water, shade and free range. If the chicks must be kept in confinement, succulent green feed should be supplied regularly

**Seeds by the Yard**—While most Westerners buy their seed by the packet or pound, large dealers in the East have developed an enormous trade in "seeds by the yard." The seeds are enclosed in strips of paper which may be unrolled and planted with very little trouble. In some cases the paper is impregnated with fertilizing materials which promote germination and rapid growth of the young plants. Other advantages of this method are uniform spacing and convenience in planting. "Send me three yards of bean seed" is the sort of order received by many an up-to-date dealer.

**Hog Cholera Note**—Quick action means dollars saved when cholera attacks the swine herd. Serum is not a cure. Its use is intended as a preventive agent against cholera. It seems, however, to have some curative value when administered in the early stages of the disease. When many animals show symptoms of cholera, and fever is revealed, it is advisable immediately to treat the entire herd; or, better still, if hogs have been exposed to infection, they should be immunized before they are attacked. Many farmers have been disappointed in results secured with serum because they expect too much of it as a curative agent.

**Diversification Upheld**—California and Oregon lead the list of the few States which showed high crop values for 1920, in relation to a five-year average. Study of official statistics shows that the States which maintained the highest values were those in which diversification of production was most general. The States which suffered most from declining markets and unsettled conditions were those in which only a few staple crops are grown extensively.

**Concerning the Dasheen**—A number of subscribers have inquired concerning the vegetable known as the dasheen, which is being advertised widely as a highly desirable product likely to prove profitable to producers. According to H. L. Musser, of the Aggeler & Musser Seed Co. Los Angeles however, the dasheen has not proved very successful in Southern California, the only extensive market developed having been among the Chinese. The dasheen, it seems, is used by the Chinaman as a substitute for potatoes. Mr. Musser states that the white man must cultivate a taste for the vegetable as it possesses a fungoid flavor.

## Ben Gonnadooit Says

*LUCK has always been agin me! There's Jud Freemon, jest about my age, who started with nothin', some as I did. And now look at 'im! His form is paid for, he drives a big car, and his family allus has plenty of nice clothes. Seems like everythin' he tetches turns to money. Luckiest fellow I ever knew, Freeman is.*

*T'other day I asked him th' secret of his success an' he says, "Ben, they's only one sure system fer gettin' ahead."*

*"What is it?" says I, interested right away, seein' as how I seem t' take two steps back fer ev'ry one forward.*

*"Jest this," answers Jud. "Work like hell, be on the square, an' always spend less than you earn."*

*An' that's all I c'd get out of him. So it goes. The other feller's formula never seems t' fit my case. How kin I spend less than I earn when I ain't never yet earned enough t' live on? An' how kin I do good work when I'm worryin' myself sick all th' time about my increasin' debts? I reckon my case is hopeless.—Ben Gonnadooit.*

## Squab Success

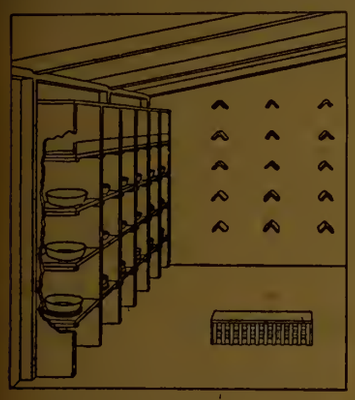
(Continued from Page 6)

s for sale and the process is re-d as above."

### Comparison of Squabs with Poultry

MR. BERRY drew interesting comparisons between ordinary poultry broilers" or "fryers" and squabs. In a comparative test carried on by a poultryman and himself, the squab received much the best of it, he asserted. A squab weighing one pound was divested of bones, head, feathers, skin and entrails, and showed a shrinkage in weight of only five ounces, giving eleven ounces of edible meat.

A broiler weighing two and one-fourth pounds gave in edible meat only thirteen ounces or two ounces more than the squab. The squab would have



*Interior of Nesting Pen*

sold on the current market for $1.15, while the "fryer" would have cost $1.50.

"But not alone the difference in cost should be considered," added Mr. Berry, in pointing out the true value of the squab. "The meat is richer. Also, the squab is really a matured bird, while the fryer is not mature. Therefore many would maintain that the meat of the squab is more healthful.

DIFFERENCE IN FOOD

"This point is strengthened by a comparison of the habits of pigeons and chickens. The chicken lives upon and scratches in the dirt, eating anything and everything, including bugs, worms and meat scraps, and is exposed to mites and lice.

"The pigeon, on the other hand, when kept in the manner I am following, does not touch foot upon the ground, eats nothing but clean, hard grains, and is exposed neither to disease nor pest."

### Equipment and Method of Feeding

SQUAB raising has been reduced almost to an exact science by Mr. Berry, whose equipment is very efficient and complete and whose system never varies. The quarters for the birds are composed of units, which may be added in any number. On the Berry ranch" two long buildings made up of these units extend at an angle from either side of a central granary, where supplies are kept.

Each unit is composed of a nesting room, 10 by 12 feet, and a "fly-way," 10 by 14 feet, with an alley between. Connecting the nesting room and the fly is a small passageway over the top of the alley with a movable bottom so that the birds may be confined at will to either side. The nesting room is enclosed, while the fly is covered and sides with galvanized netting. Nesting also forms the front of the nesting room, while the roof extends over this room and the alley, which is seven feet wide and seven feet high, with cement floor. (The floors of the [illegible] of dirt.)

WATER ESSENTIAL

[illegible] the entire length of the

(Continued on Page 27)

Hundreds of tire users in this vicinity have learned through actual experience that when they buy STEPHENS TIRES they get more real quality and save more money than on any brand of tires they ever bought. They have learned that ordinary tire prices are high because of the numerous profits and expenses that are added from the time the tires leave the factory until they reach the user. HIGH PROFITS MAKE HIGH PRICES.

STEPHENS TIRES are built by a factory that sells DIRECT TO THE USER through its own chain of stores. Only ONE SMALL PROFIT is added to each STEPHENS TIRE from the time it leaves the STEPHENS FACTORY until it reaches you. You save at least 50 per cent on your yearly tire bills through this FACTORY TO USER POLICY. WHY CONTINUE PAYING HIGH PRICES when you can get even better tires at ROCK BOTTOM PRICES?

| Size. | Ribbed. | Non-Skid. | Tubes Gray. | Tubes Red. |
|---|---|---|---|---|
| 30x3 | $10.85 | $11.25 | $2.05 | $2.25 |
| 30x3½ | 13.25 | 13.75 | 2.15 | 2.35 |
| 31x3½ | 15.25 | 15.75 | 2.30 | 2.55 |
| 32x3½ | 16.75 | 17.50 | 2.40 | 2.65 |
| 34x3½ | 18.60 | 19.50 | 2.60 | 2.90 |
| 31x4 | 19.95 | 20.95 | 2.85 | 3.10 |
| 32x4 | 21.95 | 22.95 | 2.90 | 3.20 |
| 33x4 | 22.75 | 23.95 | 3.00 | 3.30 |
| 34x4 | 23.25 | 24.50 | 3.15 | 3.45 |
| 35x4 | 24.50 | 25.50 | 3.25 | 3.55 |
| 36x4 | 25.75 | 26.75 | 3.35 | 3.70 |
| 32x4½ | .... | 29.50 | 3.40 | 3.80 |
| 34x4½ | 29.50 | 30.50 | 3.55 | 3.90 |
| 35x4½ | 30.25 | 32.25 | 3.60 | 3.95 |
| 36x4½ | 31.50 | 33.50 | 3.70 | 4.05 |
| 37x4½ | 33.55 | 34.50 | 3.70 | 4.05 |
| 35x5 | 38.50 | 40.75 | 3.70 | 4.05 |
| 37x5 | 41.75 | 43.75 | 3.85 | 4.25 |

NO WAR TAX

# Factory Prices on Stephens Accessories

| | |
|---|---|
| Stephens Tire Boots | 29c up |
| Stephens Fan Belts for Ford | 33c |
| Stephens Fan Belts for Buick | 65c |
| Stephens Fan Belts for Dodge | 59c |
| Stephens Fan Belts for Maxwell | 75c |
| Stephens Fan Belts for Overland | 57c |
| Stephens Fan Belts for Cheyrolet | 32c |
| Ford Top Recover Complete— | |
| Touring Model | $ 8.70 |
| Roadster Model | 6.70 |
| Top Recover for Dodge 1920-21 | 18.00 |
| Sun and Rain Shades, all cars | 2.95 |
| Ford Back Curtains | 2.70 |
| Ford Curtain Lights | .45 |
| Inside Blow-out Patches | 25c up |
| Tube Patching Outfit | 19c |
| Cementless Patches | 15c |
| Stephens Tire Reliners | 78c up |
| Quality Tire Covers | $1.35 up |
| Driver's Wedge Back Cushion | $1.95 up |
| Spark Plug Case | .23 |
| Top Recover for Buick, 1920-21 | 20.00 |
| Top Recover for Chevrolet | 14.95 |
| Top Recover for Maxwell | 15.95 |
| One-Man Ford Top | 34.95 |
| Ford Side Curtains, set | 10.00 |
| Hand Door Grips | .30 |
| Pocket Door Covers | .73 |

## MAIL ORDERS

Send us your order by mail. We guarantee prompt shipment. If goods are not entirely satisfactory, return them and your money cheerfully refunded. We take the risk.

# Stephens Tire Stores Co.

1234 So. Grand Ave. G. C. Williams, Mgr. Los Angeles

Phone 62656

# EDITORIAL DEPARTMENT

*Timely Topics among Farm Folk*

## "Farmerettes"

"FROM a weary farmerette of the San Joaquin Valley," is the sad closing phrase of a letter received recently by the editor. The writer requests that ORCHARD and FARM publish regularly a column of practical help for the farmerette, assuring us that we would be doing a great service to the weaker sex.

"Women as yet are not successful farmers," she maintains, her complaint fairly oozing tears of discouragement. "Farm hands do not like to be bossed by a woman," she adds, "and mankind in general seems to think it a privilege to 'sting' farmerettes. Unless a woman has an excellent foreman, farming on a large scale is a burden."

We agree that farming on a large scale is a burden for anyone, man or woman. And the only substitutes for a capable foreman in either case are a strong constitution, almost unlimited endurance, exact scientific knowledge, driving power, business ability and determination. It is no reflection upon the gentler sex that not all of these attributes were given to the majority of women by Nature.

## No Magic Method

ORCHARD and FARM cannot give ambitious farmerettes any magical formula for success. The advice and information published in each issue of this magazine apply to all farming, whether conducted by a man or a woman. If any of our esteemed feminine subscribers desire to enter into competition in a "man's game," which calls for a man's stamina, we can offer nothing more than our good wishes, and sympathy in the difficulties they are certain to encounter.

Somehow we cannot help feeling that there exist for womankind, opportunities for service and accomplishment which are closed to men. Perhaps our "Weary Farmerette" merely is at odds with Nature. Perhaps she is wasting valuable energy that might, with more profit to herself and others, be expended in a different sphere.

On the other hand, our correspondent may have attempted a line of agriculture that was beyond her physical strength. Many women are making a success of beekeeping, poultry raising, and other agricultural specialties which call for close attention to detail (a quality usually lacking in a man) and which do not overtax a delicate constitution.

What, we wonder, will be the next experiment of the "restless sex?"

---

Uncle Wiseacre says we should show a spirit of leniency towards the farmer who frowns slightly and uses such ugly expletives as "Oh dear me," or "Gracious sakes alive," while selling his three dollar hay and buying his twelve dollar shoes.

## World Amazed at Farmers' Daring Project

THE grain handling and marketing system of the California growers, as outlined in a recent issue of ORCHARD and FARM, although of vast importance to this State, now takes a minor position in relation to the great national plan advanced by the "Farmers' Committee of 17."

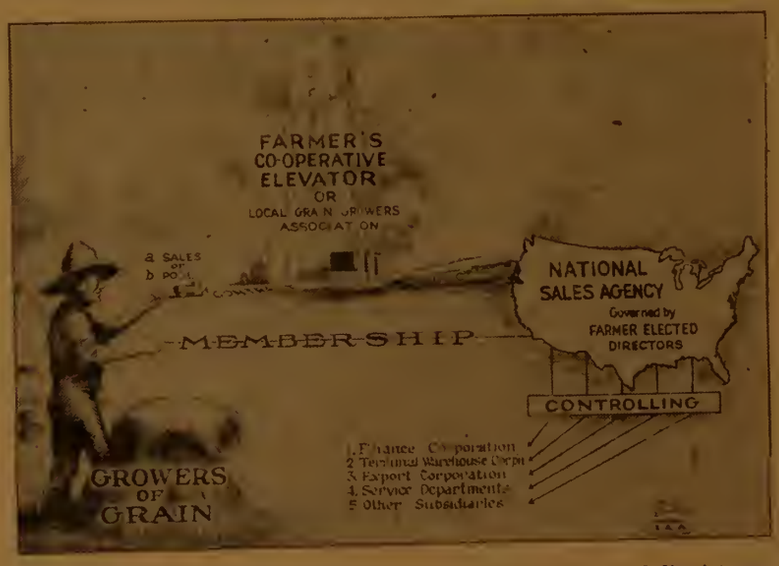
Heralded by front page articles in the leading metropolitan newspapers, this carefully formulated scheme for direct marketing of the nation's grain supply is without question the outstanding development of the "New Agriculture."

It is a milestone in farming development; a turning point, perhaps. The plan represents six months' intensive study of distribution and marketing.

It will, in the opinion of the farmers who have developed it, eliminate waste in distribution, provide for orderly marketing, stabilize prices, increase net returns to the grower, WITHOUT INCREASING THE PRICE TO THE CONSUMER, and release the farmers from the clutches of the wasteful system that has made their business a gamble.

Grain selling, according to the plan, will be concentrated in the hands of a National Sales Association, with membership and voting control limited to actual growers. This sales association will establish branch offices in all principal grain markets, and will, if it desires, purchase seats on the Boards of Trade.

It will establish a complete system of gathering and interpreting statistics of world conditions which affect supply and demand, making available to members information heretofore jealously guarded by brokers and market gamblers.




A subsidiary warehouse corporation will provide terminal and district warehouses equipped with proper machinery. An export corporation will find foreign outlet for surplus grain. All money received for grain, less operating and handling costs, will be returned to the growers.

The eyes of the world are focused upon this amazing and revolutionary plan of the farmers. Its success will herald a new rural independence and a new social order.

## What About Prunes?

OVER 50 per cent of the 1920 prune crop was unmarketed on April first, according to a review of the prune situation issued recently by the Bank of Italy. The financial institution views present conditions in mildly pessmistic vein. Lack of co-operation among different factors is given as the prime reason for successful market raids by dealers.

The independents and the association have worked at cross purposes, the report states. That the situation presents a hopeful aspect, however, is admitted by the bank, which calls attention to the probability of a more stable market resulting from the price war.

The immediate future of the prune is very uncertain, with Herculean efforts being made at present to move accumulated stocks—efforts in which every one interested is joining.

All parties to the price controversy, however, are displaying equal determination, and one man's guess equals another as to the outcome. But ORCHARD and FARM believes that any serious difficulty encountered by this great industry cannot be more than temporary. The once-lowly prune now is welcomed in the best society, and foreign demand is sure to develop again into more normal proportions. Meanwhile, everyone eat prunes!

## Alaska

THE wonderful story of Alaska's agricultural possibilities will be told in a series of articles, of which the first appears in this number of ORCHARD and FARM. Yet Agriculture, so far, is one of the least important sources of revenue in this marvelous treasure land.

In spite of its great resources, however, all is not well with the Territory. Almost every dispatch from lovers of Alaska tells of discouragement and discontent.

Far from the seat of Government, handicapped by red tape, held back by inactive Government control of natural resources, the people of Alaska feel that they are not progressing as rapidly as they should. Much interest and importance, therefore, is attached to a recent Washington dispatch, stating that President Harding, accompanied by Secretary Fall, will visit Alaska for a first-hand study of its administrative problems.

Those who have fallen victims to the "lure of the North" will be encouraged by the knowledge that the new Administration intends to take an active interest in "Seward's Folly," which is regarded as "folly" no more, but as one of America's greatest assets.

## Too One-Sided?

A NUMBER of our readers assert this State is suffering from over-emphasis of horticulture and failure to recognize the primary importance of animal industry.

California should have more and better live stock; there is no question about it! Just now the livestock men are a bit "in the dark," but already the silver lining is visible. Now, while prices are lower than in years, is a good time to "stock up."

## Pessimistic Proverbs

All is not old that's bitter.

It's a strong draft that blows up a bank vault.

There's many a slip twixt the flask and the hip.

People who live in glass houses shouldn't throw shadows

Honesty is a good policy, but sometimes carries a high premium and pays a low dividend.

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CONCISE CONTRIBUTIONS
On practical agricultural subjects are invited. Unavailable manuscript promptly returned if postage is [illegible]. Preference is given to accounts of actual experiences, telling how, when, where, what and why.

## Alaska Agriculture

(Continued From Page 5)

[illegible] degrees above zero was the coldest weather experienced during either of the past two winters. They are grown with equal success, if not better, in the interior where 65 degrees below zero is not unusual. Other crops are more limited in their adaptation.

An old-time Alaskan, on a recent visit to his former home in the State of New York, gave out the following interview: "Years ago I said that Alaska was the wonderland of the world. I reiterate that statement. Nine-tenths of the people of the United States have no idea of the vastness of her boundaries; the extent of her domain; the grandeur of her scenery, the salubrity of her climate; the wonders of her mountains; the length of her rivers; the possibilities of her fisheries; the greatness of her forests; the grazing advantages of her valleys for sheep and cattle; her untouched agricultural resources; her incalculable mineral wealth, and the splendid homes awaiting the multitudes in this land that swells with opportunity for the earnest worker and the brave pioneer."

And that "old-timer" is right. Too little is known of Alaska and her possibilities. Apparently the efforts of many writers have failed to remove the impression that only Eskimos, Polar bears and icebergs are found there. The average citizen in the "States" seems unable to realize that Alaska is a land of happy homes, schools, churches, societies, fraternal organizations and fertile farms. Its scenery is unsurpassed by that of any country in the world.

Its potential water power is sufficient to insure great industrial development. The spruce forests promise a tremendous paper pulp industry. Five big oil fields are known. The fish production in 1918 exceeded the combined output of British Columbia and the States of Washington, Oregon and California.

Coal deposits are of greater area than originally were contained in the State of Pennsylvania. Marble that rivals only that of Vermont is being quarried in Alaska. Gold, copper, tin, antimony, iron, gypsum and barytes are among Alaska's mineral products, and yet we know geographically only about 4% per cent of the territory.

Added to these amazing resources is the real and subtle lure of the North. Of this, Robert W. Service says:

*"'Tis the strong life that never knows harness,*
*'Tis the wilds where the caribou call;*
*'Tis the freedom, the freshness, the farness—*
*O God, how I'm stuck on it all."*

## SOURCES of INFORMATION
*"The Fruit of the Tree of Knowledge"*

THE following new Government bulletins now are available and will be sent free upon request. Address Division of Publications, U. S. Dept. of Agriculture, Washington, D. C. Order by number.

FARMERS' BULLETIN

Management of Growing Chicks....1111
House Cleaning Made Easier.....1180
Operating Home Heating Plant.....1194
Growing Annual Flowering Plants..1171
Handling Spinach for Shipment....1189
Diseases of Sheep .....1165
Feeding Sheep on Temporary Pastures .....1181

The following technical or scientific bulletins, applying to special industries or localities, will be sent upon receipt of price listed. Address Superintendent of Documents, U. S. Dept. of Agriculture, Washington, D. C.

DEPARTMENT CIRCULAR

Developing an American Utility Horse .....153
Whitewash and Cold Water Paint. 304

BULLETIN

Walnut—Its Growth and Management ..... 933 20c
Practices in Growing Crops in Sugar Beet Districts in Colorado.. ... 917 20c

The California State Department of Agriculture has issued a special pest bulletin which takes up additional work with new pests of the orchard field. This number also contains an interesting article on bud selection by A. D. Babcock of the University of California. The bulletin may be obtained by addressing the State Department of Agriculture, Sacramento.

# International 8-16
## The Adaptable Farm Power

ON sun-baked slopes, in rain-soaked valleys, on rolling uplands and level plains—everywhere you will find **International 8-16 Kerosene Tractors** working efficiently, converting cheap kerosene into valuable farm power.

Plowing, disking, seeding, cultivating orchards, hauling heavy loads on road and farm, pulling stumps, dragging roads, drawing mowers, hay loaders, grain harvesting machines; threshing grain, baling hay, cutting ensilage, sawing wood—on all heavy farm tasks where dependable power is required either at the drawbar or belt pulley **International 8-16 Kerosene Tractors** are rendering satisfactory, year-'round service.

The **International 8-16,** because of its light weight, snug compactness, ease of control, generous reserve power above its rating for emergency pulls, three speeds forward, economical operation and general fitness for diversified service, is highly popular with farmers in every branch of agriculture.

Fifteen years of tractor building experience and over three-quarters of a century of general farm machine success, backed by a broad-as-agriculture reputation for fair dealing, good quality and dependable after-sale service—these factors are your assurance of satisfaction when you buy an **International 8-16 Kerosene Tractor.**

**INTERNATIONAL HARVESTER COMPANY**
OF AMERICA (INCORPORATED)
CHICAGO U S A

**92 Branch Houses in the United States**



## Bees for Profit

Make big money with little work. Small expense to start. Bees find own food. Honey brings good prices. We buy all you can spare. Bees are easily kept and cared for

**The Root Way**

We've made complete line of Beekeepers' supplies for 50 years. Tell us your occupation and whether you keep bees now. This helps us help you. Handsome free booklet, "Bees for Pleasure and profit," packed with beekeeping information. Write for it today.

**THE A. I. ROOT COMPANY**
1830 E. 15th St. Los Angeles — 5254 Main St. San Francisco



# PIPE

**We are making attractive prices for a short time only on the following sizes:**

2 -inch O. D. Screw Casing — 2½-inch O. D. Screw Casing
2¼-inch O. D. Screw Casing — 3½-inch O. D. Screw Casing
4-inch O. D. Screw Casing
¾-inch Standard Black Pipe — 1¼-inch Standard Black Pipe
1 -inch Standard Black Pipe — 1½-inch Standard Black Pipe
3000 feet 6-inch Riveted No. 16 Gauge
5000 feet 12-inch Riveted No. 12 Gauge
10,000 feet 3½-inch new Standard Galvanized Pipe

**PACIFIC PIPE COMPANY**
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# The Aldrich: *upright* or *grand*—a good piano modestly priced

THE Aldrich piano—upright or grand—is made according to our own specifications.

It is made according to standards that we have evolved out of forty-three years of painstaking piano merchandising.

Upright or grand, in any of its several models, the Aldrich, in our belief, successfully fulfills this ideal:

*An instrument that we can recommend, at a price certain to be attractive.*

*Write or call for literature*
*Convenient payment terms gladly arranged*

**Sherman Clay & Co.**

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Fourteenth and Clay Streets, Oakland
Ninth and J Sts., Sacramento • 325 E. Main St., Stockton
J and Merced Sts., Fresno • 190-192 S. First St., San Jose
Stores also at Vallejo, Portland, Seattle, Tacoma, Spokane

IN ANSWERING ADVERTISEMENTS PLEASE MENTION ORCHARD AND FARM

## Increase gas engine power-

**Save gasoline and oil – decrease carbon troubles and repair-work with this great piston ring equipment**

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# A City Dairyman Who Has Made Good

IF YOU have a hard luck story don't ask J. B. Yarnell to listen to it, because he is too busy creating good luck for himself and his family. Mr. Yarnell came to Southern California from Tennessee, where most of the natives are popularly supposed to "take things easy." His first move was to secure a clerical position in a Los Angeles railway office and his second to go in debt for a home.

But with a large family to support the Yarnells were not satisfied with the progress they were making on his regular salary. The indoor work, too, grew irksome to the active young man, and, harking back to his early farm training, he decided to engage in the dairy business "on the side."

The Yarnell home is situated atop a "mountain" within the city of Los Angeles. About thirty families now live in this district and he supplies them all with milk. Moreover, he was able to secure at a reasonable rate the use of pasture land adjoining his home and extending down the hillside.

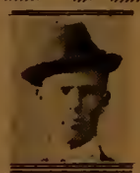
Mr. Yarnell started with one grade Holstein heifer, which he bought for $100. Now, after four years, he owns twelve head of high grade Holstein cows and heifers in addition to young calves, and values this stock conservatively at $2000. Moreover, it is all paid for and over $1000 has been realized from the sale of extra stock. By the use of the best bulls he has developed a very fine little herd of heavy-milking cows.

During practically all of the time he

(Continued on Page 17)

*HERE are J. B. Yarnell and his wife. "Without her help and encouragement," he says, "I might have become despondent many times. She is the best partner a man ever had." Yarnell believes in making his own opportunities, and Mrs. Yarnell believes in helping him develop them.*

# "BOB" JONES' CORNER



## Little Stories of Farming

By ROBERT E. JONES

**40,000 Cars, Says Nagle**—John L. Nagle, General Manager of the California Fruit Exchange, estimates that California will ship 40,000 carloads of deciduous fruits this year. Last year shipments totaled 35,200 carloads. Within my short recollection shipments have been as low as 5000 cars for a year. Nagle's figures apply to so-called "green" fruits, which means fresh cherries, apricots, plums, peaches, pears and grapes shipped under ice. The deciduous fruit industry certainly has progressed somewhat since John Wolfskill brought tree seeds and cuttings from Los Angeles to Solano County in 1848 and set out the first trees on the banks of Putah Creek.

**Keeping Physically Fit**—Do you ever feel that you are not physically fit? Business men often get out of condition for the want of exercise. But one would think a farmer would get sufficient exercise on the job. Yet A. B. Humphrey of Escalon and Mayhews, "Hog King and Fruit Baron," spends twenty minutes each morning before breakfast going through a system of exercises. Humphrey feels he owes a great deal of his efficiency to his twenty-five years of calisthentics and cold baths. And Humphrey is a real farmer. He has 800 acres at Escalon under irrigation, one of the best equipped and managed plants in California. He has a nation-wide reputation as a breeder of Berkshire hogs and Guernsey cattle, and as a packer of fancy grapes. There's a lot more to be said about Humphrey, but I am mentioning now just his plan of keeping "physically fit."

**Onions Up and Down**—Early last spring onions were selling at $10 to $12 a sack. This year train loads are being dumped. No more striking illustration may be given of the gamble in the farming game. The farmer is an unwilling gambler, but how he does play! What cure would you suggest?

**How They Came to Be**—Did you ever see the Marysville Buttes? They are an odd formation standing in the heart of Sacramento Valley beside the river, about 2000 feet high with nothing to connect them with

the Coast Range or Sierra Nevada Mountains, I heard a "blanket stiff" in one of the farm camps explain their origin the other day. He said I was working for Joe Burton (a fictitious character known among "blanket stiffs" as the Hercules of construction contractors). We were building Pike's Peak. Joe got a contract to build the Coast Range Mountains and, on the way over, we stopped here to clean out the steam shovel."

**More Spuds Per Acre**—George Peters of Bakersfield, President of the California Seed Potato Growers' Association, says the way to beat declining prices is to grow more per acre. Here's his idea: "I may not get so much for my potatoes, but I'll farm better and grow more and thereby get more money." A simple remedy. Peters is not at all pessimistic. He expects the earth to keep rotating on its axis as usual and the bees to keep on gathering honey.

**Cherries on the Way**—The Vacaville district again has opened the deciduous fruit season with a box of cherries shipped to the East the first week in April. Loomis lost out by a few hours. The vale of Solano County has a little advantage over the Placer district because it gets the sun in the morning, being on the west side of the Sacramento Valley. These first cherries are fruit, all right, but rather pale and devoid of sugar. Competition is keen to get off the first box and the prize usually lies between Solano and Placer. I remember one year, however, when Ernest Gammon, a fruit grower at Hood, Sacramento County, beat them both. A new levee had just been built on Gammon's property, which is a river farm, and the sand embankment reflected extra light on a row of his cherry trees. They ripened the first fruit that year and Gammon got $100 in New York for his first box.

**Labor Saving and Poultry**—The efficient poultryman will tell you that, given the efficient hen and a sensible feeding system, his profits will depend upon saving in labor. Labor saving may mean the difference between success and failure. F. C. Little of Hayward has worked out a "one-man" plant with a capacity of 3000 hens. He has a three-story house.

**Reclaiming Orchards** — "Subsoiling" promises to revolutionize fruit farming in some of the upland districts of California where hard-pan or a tough, sticky subsoil retards root development and water percolation. S. Glen Andrus of Fairoaks, an orange district of the Sacramento Valley, tells of the wonderful vigor of his trees since a group of farmers there bought a tractor and subsoil plow. They cut a chiseled furrow 18 to 20 inches in the soil, breaking up the hard-pan. Many of the farmers are now irrigating in this furrow and they find that, judging by the amount of water it now takes to saturate the soil, their trees must have been thirsty all the time under the old plan of irrigating in small ditches. There are hundreds of thousands of acres of soils in California which may be made highly productive through the improvement of their mechanical condition through subsoiling.

**He Believes in Raisins**—Wylie M. Giffen of Fresno, leading spirit in the Associated Raisin Growers, believes in raisins and in the future thereof. A report from Orland, Glenn County, states that he has just purchased the 480-acre Gregory place near there and intends setting out the entire area to vineyard.

**From Teacher to Farmer**—Assemblyman F. T. Cummings, who has been leading the "Save-the-Redwoods" campaign in the California Legislature, was a high school instructor the first time I knew him. Now he is a prosperous dairy farmer of Humboldt, with 80 acres of bottom land and 40 highly productive cows, a member of the cow-testing association and an active worker in the Farm Bureau. As school instructor he found it hard to finance himself. He went into Humboldt interested in country life and, by hard work and intelligent [illegible] a fine place that he [illegible] is happy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As a farmer, Cummings finds time to do just as much constructive work for community and State betterment as he did as a school teacher.

**Following California Plans**—From an Arkansas man I learn that the livestock farmers in that State have taken a lead from the California plan of co-operative marketing. These Arkansas farmers are now assembling their small lots of cattle, hogs and sheep and are shipping in carload lots through the agency of the county farm adviser, or "county agent." The California Farm Bureau Marketing Association of the San Joaquin Valley originated this plan. Such men as Roy Filcher of Corcoran, George Peters of Bakersfield and George Kreutzer of the California Land Settlement Colony at Durham pioneered

# MOLASSES

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**Says Mr. C. V. Hartwig, Yuba City, Cal.**

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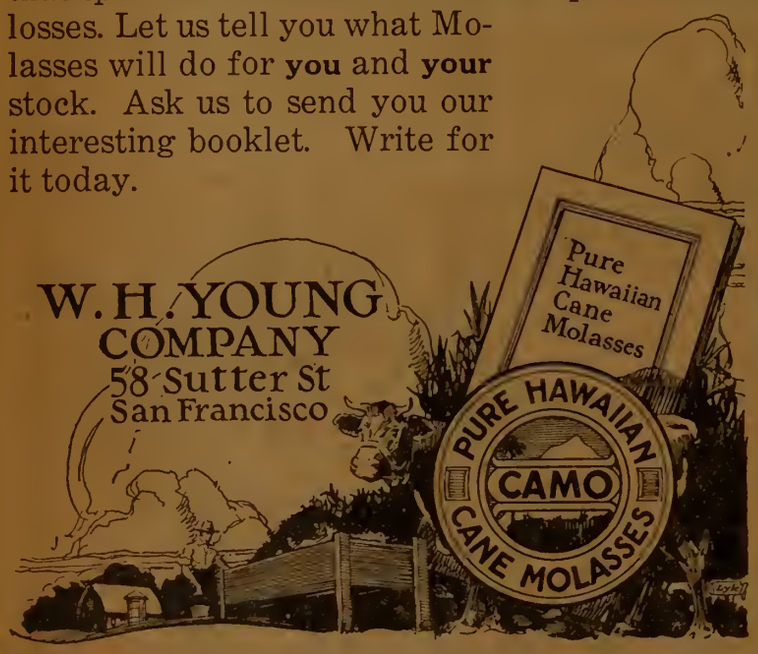


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# Tuberculosis and the Dairyman

By Dr. J. P. Iverson

TUBERCULOSIS is steadily and surely killing more animals than all of the infectious diseases in the State together.

And in addition to such direct losses the producers of beef and pork, especially those owners of hogs raised upon by-products of a dairy business, must sustain great damage, known to aggregate millions, through condemnation in slaughtering establishments. Even then not all tubercular animals are condemned, for at the present time in the rural communities evidence indicates that much of this diseased meat is being consumed.

Dairymen everywhere recognize the desirability of eradicating tuberculosis in their herds, especially if the infection has existed a sufficient length of time for them to realize its destructive character. The reason that a more strenuous demand has not been made before now is because of the slow course taken by the disease in working destruction. If one or ten animals die in a certain herd over night of anthrax, immediately the whole community is in a frenzy. Yet tuberculosis continues its insidious inroads, in many cases almost unheeded.

***HOW can the milk producer free his herd of the dread white plague and keep it free? What is the status of tuberculosis elimination work in this State? These are questions vitally affecting not only the great dairy industry, but also nearly every one of California's 3,500,000 people. Through two remarkable articles, prepared especially for this magazine by the chief of the California Division of Animal Industry, ORCHARD and FARM offers practical, interesting answers to these questions.—Ed.***

In considering the problem of eradicating tuberculosis uninformed readers may wonder why, instead of talking so much, authorities do not proceed to test all the animals in the State, destroying those having tuberculosis and having the whole disagreeable affair over with at once.

There are three great obstacles which prevent such a course, however desirable it might appear upon first thought. In the first place it would ruin the dairy industry, for so many valuable animals would be destroyed that not only would a very large number of our dairymen be forced out of business, but also there would result a great deficiency of dairy products. There would follow then a plague of undernourishment perhaps as disastrous in its effects as the great white plague itself.

Again, if we were to attempt to pay for all of the cows which would have to be killed under such a plan the State treasury would be bankrupt. And finally, we have no absolutely reliable means for detecting the presence of tubercular cows in any herd.

## TESTS NOT INFALLIBLE

Unfortunately, some have been led to believe that the tuberculin test is infallible, which is manifestly untrue. If it were 100 per cent efficient in its ability to detect all tubercular animals in every herd, the matter of eradication would be comparatively simple.

This statements calls for a brief discussion of the various tuberculin tests now in common use, together with their relative advantages and disadvantages. The subcutaneous (thermal), being the first test used extensively, was considered for many years the best. Today, it is more and more being replaced by the intradermal method.

The fact that the subcutaneous or thermal test is cumbersome and time-consuming, is not its most serious objection. We all recognize that there are many influences that may cause fluctuations of a cow's temperature, making the test inapplicable in some cases, as just before or after parturition, and in other cases making the interpretation of the temperature chart most difficult and probably inaccurate.

On the other hand, there is but one thing that will cause a hard lump at the point of inoculation typical of intradermal reaction; that is, tuberculosis. The intradermal test in the hands of an experienced operator is not likely to give reactions when animals are not affected. As to the relative value of these two most commonly used tests, in their ability to pick out all of the reactors, in some cases cows will react to the "subcutaneous" when they will not react to the "intradermal," and in other cases, within the same herd, cows will give an intradermal reaction when they will not react to the subcutaneous method.

## THE OPHTHALMIC TEST.

The ophthalmic test has not been much in favor because when used alone it does not detect as many of the tubercular animals in a given herd as either of the above tests. A modification of this test, known as the "sensitized ophthalmic" recently has gained great favor as a means for detecting those advanced cases of tuberculosis, known as "spreaders," that will frequently not be found by any other means.

The possibilities of this test were illustrated recently in a herd of some sixty head that had been tested at about six months intervals during the past six or seven years, using generally the "intradermal," sometimes the "thermal," and at other times a combination of the "intradermal," "thermal" and "ophthalmic."

Into this herd outside animals had been introduced from time to time. Usually one, two or three reactors were found when each test was made. When the test six months previous to the last test was made, five cows reacted to one of the three methods then employed and were removed.

At that time there was noted in the herd a cow that was thin and presented an unthrifty appearance in general, but that gave no reaction to any of the tests then applied. No external lymph nodes were enlarged and no evidence of tuberculosis other than the general unthrifty appearance could be noted. The herdsman said that a very heavy flow of milk, unusually rich in fat, was being obtained. The animal's condition was attributed to this fact, and she remained in the herd.

On the last test in this herd nineteen head reacted to a combination of the "sensitized ophthalmic" and the "intradermal," including the cow previously mentioned. In this connection there is another important fact to be noted. It is thus seen that physical evidence of disease must be decided against the cow if it is desired to clean a herd of tuberculosis, even though she proves negative to the test.

## WHAT OF THE "SPREADER?"

This brings us face to face with the most difficult problem with which we must cope in tuberculosis control; namely, the elimination of the advanced case that is a "spreader" or that is likely to become a "spreader" before a subsequent test.

It seems to be a consensus of opinion that if 80 per cent of tubercular cattle in a badly-affected herd react to any one test, the result is all that can be expected, leaving 20 per cent still in the herd, and these are by no means all physical cases.

Among this 20 per cent there are likely to be at least some of the most dangerous spreaders of the entire herd. This 20 per cent can be materially reduced by using a combination of tests. Possibly in most instances, by the use of the proposed "sensitized ophthalmic," the "spreaders" may all be detected and removed at the time of the first test; however, a combination of the three best-recognized methods for field testing should be given at the beginning of the attempt to eradicate tuberculosis from a given herd; then if the two succeeding tests at six months intervals show decreasing number of reactors, it may be considered that progress is being made and the prognosis (forecast) is favorable.

Should a number of [illegible]

[illegible] test, it is evidence, [illegible] that "spreaders" still remain in the herd, provided, of course, proper sanitary precautions, such as scraping, cleaning and plowing corrals and grazing grounds have been taken.

NECESSARY PRECAUTIONS.

All of these precautions are an absolute necessity as shown by Doctor Traum's experiment recently completed at the State University. Further, it is necessary that the barns and all the parts thereof be thoroughly cleaned, and saturated with a disinfecting solution. When "spreaders" are present in a herd and means of detection fail, there remains but one course—consider the herd 100 per cent tubercular and proceed to establish another herd.

(In a succeeding article, Dr. Iverson will explain how a herd may be "brought up" free from tuberculosis, giving instructions for the handling and feeding of calves to prevent their infection.—Ed.)

## City Dairyman

(Continued from Page 14)

was operating and developing his dairy this enterprising city farmer has continued his regular work (eight hours a day), the trip back and forth requiring an additional two hours daily. The dairy work, therefore, has all been done before and after this day of ten hours. Yet, far from injuring his health by overwork, Mr. Yarnell attributes his perfect physical condition to the fact that he has mixed outdoor exercise with his indoor duties.

BOY IS A PARTNER

A faithful and indispensable assistant is his 12-year-old son, who milks part of the cows and aids in delivering to customers. The boy is interested in the business and owns two of the young heifers. Mr. Yarnell himself makes part of the deliveries with his car while on his way to work and after arriving home. The prices received for the milk have ranged from 12 to 18 cents a quart. Two Jerseys are maintained for the purpose of enriching the product, all the customers buying simply the whole milk; none is separated. A sanitary barn with stanchions and cement floor has been built.

Milking an average of four or five cows, Mr. Yarnell has added from $150 to $200 a month to his regular income, built up a valuable little herd, purchased a car, earned a good living for his family and practically paid for the same. Moreover he has recently resigned the railroad position in order to engage with partners in a new business, but says he intends to keep his dairy.

CAME, SAW, CONQUERED!

To be sure, his "mountain" home within a metropolis is unique, and few men would be able to operate a dairy with pasture almost in the heart of a great city. But Yarnell, before he had seen many hours in California, saw and seized an opportunity—and because he wasn't afraid of work he pitched in and beat the game. Not all the hardy pioneers lived in a past generation! But does not the America of today need more men like Yarnell of Tennessee and California?—J. C. K.

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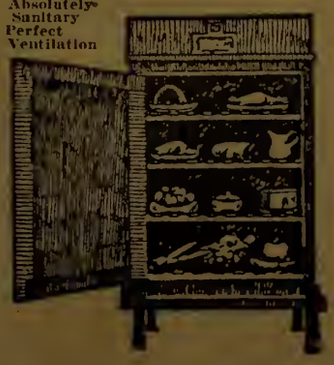

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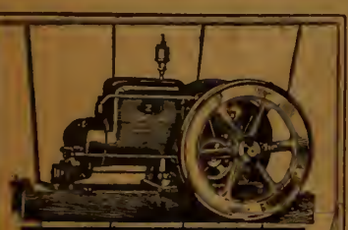

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# Advice for Milk Goat Raisers

By Dr. J. F. Farmer

THIS article is not intended in any way to inveigh against the pure bred goat. It is essential to the industry that the purity of the blood be kept unsullied and tho impartiality of the subject is more apparent when it is remembered that the fields of the pure bred and utility goat are mutually exclusive.

**What Is the Utility Goat?**

The dividing line between them is the record book of the A. M. G. R. A., for as soon as the price of an animal increases because of registration it leaves the utility field.

The pure bred owner is engaged in producing high priced kids. The breeder of utility goats is interested in milk production, for to the consumer the milk of a fifty-dollar goat is as palatable as the milk from a five-hundred-dollar goat, and milk is what he is after, not pedigree.

The importance of the utility goat becomes more apparent when we read, in the government reports, of the high percentage of diseased dairy cows, due largely to unwise care and feeding.

Consequently, more and more people are turning to the much-misunderstood goat for their milk supply. Then, too, as the struggle for existence becomes more severe and population increases, the economy of the goat brings her to the front, with the result that those who believe in utility and practical results from their labor and money are bending their time and thought toward producing a better utility goat; the goat that will produce the greatest amount of milk in one lactation period, with the smallest outlay of feed.

## Increasing Milk Production

THE methods employed to secure the highest milk yield are like those used by every propagator of new varieties, whether it be plant or animal life. The crossing and recrossing, to accentuate the desirable features, or to lessen adverse tendencies, often brings out separate characteristics that are retained and line-bred into the species, thereby making new and better breeds.

In accordance with these well known methods, goat breeders recognize that the crossed breeds are better milkers than the pure bred strains of goats, and it is from these increased milk producers that the breeders hope to obtain a breed of goats that will excel the now standard kinds of milk animals.

However, as soon as such a breed is established it is no longer the utility goat, but a pure bred. Therefore, the province of the utility goat is a line that can be produced in quantities to supply the demand of an average family at a price that they can afford to pay.

To produce milkers that will meet this demand, the owner profitably may employ some, or all, of the following hints or advice:

Take the kids away from the doe at birth, never allowing them to nurse. Milk thoroughly every time, reaching well backward and upward to get every drop of milk in the remote cells of the mammary glands. A brief consideration of these glands no doubt will help the milker. The mammary glands, when dissected from the surrounding tissue, are much like a bunch of grapes, the main stem carrying the blood and nerves to each tiny cell, and the milk is secreted by the tiny enlargements at the end of the smallest tubules. The portion nearest the base of the gland receives the most blood; has the most glandular tissue, and secretes the most milk. As a result, the last part of the gland to be emptied is near the base, because it is farthest from the teats, and must be reached by the fingers of the milker.

Rather than use the method of manipulation altogether, the extracting of the last drop of milk is most effectively done by using the udder as a pendulum. In swinging backward and forward, the centrifugal tendency of the milk throws it into the teats, and makes the process of milking drier, shorter and easier. This brings up the subject of caked udder, which will be discussed in a later article.

The function of the mammary gland is milk production, which, like other bodily processes, is much the result of habit, and to establish profuse and long secretion of milk will bring the results sought. Therefore, prolong the first or second lactation period as long as possible by carefully milking, especially two or three months after kidding, for at that time the average doe begins to slacken her milk flow, because the kids are old enough to eat solid food and do not need their baby form of nourishment. On the other hand, some of this lessening is due to failure to milk dry, as the milk at this time begins to flow more reluctantly, and greater persistence is required in milking. In this way, the lactation period can be prolonged, by making greater demand upon the mammary gland.

This process, coupled with care and uniform kindness to the goats, will produce, from ordinary stock, utility goats that are well worth keeping by any one wishing milk. The greatest success obtained by this method coupled with judicious feeding, is in the instance of a doe that gave 4953 pounds of milk in 19 months. While the measurements were not continued, at the end of 23 months she gave two quarts. To some this may seem an exceptionally large yield, but it demonstrates the benefit of the above method.

## Teaching a Kid to Drink

AS soon as the kid is born, put its nose into a pan of warm milk, which it will begin to suck. An hour or so after birth the kids will be drinking from the pan of their own accord. —Mrs. F. L. Geer, Paso Robles, Cal. (H)

## To Give Cow a Drench

STANDING at left side of cow's neck, stoop, reach under her neck, seize the right horn with the right hand and stand erect. This will bring the cow's muzzle against your chest and the drenching bottle easily can be inserted between her teeth.—W. E. Snell, Los Angeles (H).

## Goat Dairy Equipment

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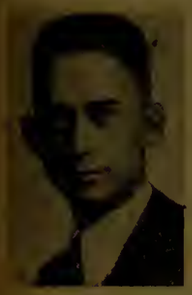
**Read With Interest**—ORCHARD and FARM is a splendid, newsy paper which I read with interest.—G. G. Phillips, Hinkley, Cal.

# Why Cull the Poultry?

By F. E. La Shelle, Jr.

(Mr. La Shelle's articles are presented through the courtesy of the Sperry Flour Company, with which he is connected, and are prepared especially for ORCHARD and FARM.—The Editor.)

CULLING is of vital importance to every poultryman, whether poultry is his specialty or only a side issue. It is important because it is a part of good management, and this is a proven fact—not a theory. Quality must take precedence over quantity.



Mr. La Shelle

While trapnesting is the ideal method of culling poultry for egg production, it is expensive. The average poultryman has neither time nor money to spend upon this type of culling. However, culling upon the basis of physical characteristics can be done successfully by those who are unable to use trapnests.

COMPARATIVE PRODUCTION

Some very interesting figures were obtained by the University of California last summer, through the work of the poultry extension specialist. During the culling season for hens 15,000 single comb White Leghorn birds were handled. (It will be of interest to note that at the time of culling a production of 30 per cent was necessary in order to pay for the feed alone.)

| | |
|---|---|
| Production of flock before culling | 32% |
| Number of culls of entire flock | 23% |
| Production after culling | 43% |
| Production of culls for ten days after culling | 11% |

Not only was the per cent production increased by eliminating the boarders, but also the feed costs were lowered.

Would any business man knowingly keep ten employes to do the work of seven? Not for a moment! He would "cull" the extra labor. Why not apply business methods to the flock?

## Things to Consider Before Culling

BEFORE culling work is begun in any flock the poultryman should consider first whether his hens have had an opportunity to give the best there is in them. For obvious reasons it is unwise to cull a flock that is in poor condition.

Next he must select the method he is to pursue in culling. The more points considered the more accurate will be the results. Those who depend on "capacity" alone will not be as successful as those who accept other points in addition as an indication of the profitable hen.

Another thing: It is wise to select the time of year for culling when best results can be obtained. Generally speaking, however, it is open season the year around for "slackers."

CONSTANT STUDY BEST

If the fowls are studied from the time they leave the shell until their period of usefulness is over a great saving can be made. The elimination of the unprofitable birds should begin with the young chicks by removing all cripples and weaklings. They can be disposed of readily from their stronger mates. By disposing of this type of stock a saving is made in time, feed and money. The weaklings are a source of possible disease.

[illegible] should be watched [illegible] the unthrifty and poor feeders disposed of as rapidly as possible. A weak pullet never will pay for its keep. A Leghorn pullet that has been handled properly and given every opportunity to mature and come into production, and does not do so at seven months of age, should be culled. All things being equal, such a bird will not be a profitable producer.

It is unsafe definitely to judge a pullet under a year old as a profitable bird, excepting by the above method, for nearly all pullets will produce at a profit the first year. The unprofitable birds can be separated after becoming one year old.

## Best Time to Cull the Hens

THE best time of year to work over the laying hens is from June 1st to September 1st. This is the period between high production and low production. The unprofitable birds will stop laying first after the peak of production is reached, if the condition of the flock is normal.

A good practice to follow is to make a thorough examination of each individual bird in the block about two weeks after a noticeable downward trend in the daily production. The daily egg collection acts as a barometer and indicates to the poultryman the fact that the non-profitable hens are ceasing to be producers and are becoming "star boarders." This first culling will weed out these profit eaters.

THE SECOND EXAMINATION

A second examination of each individual in the flock about September 1st will give the owner an opportunity to classify his birds as good layers and mediocre layers. By the use of colored bands the two groups can be distinguished readily. The good layers can be used for breeding purposes.

Generally speaking, the sick hen will not come back into her own, even if cured of her illness. As a matter of precaution against recurrence of the same illness, if contagious, the bird should be disposed of.

## Equipment for Culling

THE only equipment necessary for culling work is a good "catching coop" made from a shipping crate or constructed especially for the occasion, and a pen for the culls. A "catching coop" is a handy thing to have in a poultry plant, and it can be put to many different uses besides being useful for culling.

This coop should be about twenty-four inches wide, seventy-two inches long and eighteen inches deep. Arrange each end of the coop so as to make a sliding door, facilitating the driving of the birds into the coop for examination.

On the top near the center make two hinged doors about twelve by twenty-four inches in order that the fowls can be removed one at a time for examination. If this coop is made of light but strong material, twenty to twenty-five hens can be moved around without much difficulty.

In order to coop the birds preparatory to examination, have them all confined to the house. Remove one of the end slides and butt the coop up to one of the small exit doors in the house and quietly drive the birds out into the coop. Do not overcrowd the coop. When it holds a comfortable number of hens close the exit door on the house and replace the slide. The coop can then be carried to another pen or handled according to the plan for the day

(To be continued next month.)

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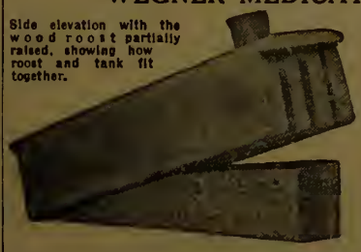

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# Hold Inquest Over Dead Birds

***AN IMPORTANT factor in successful management, perhaps not carefully considered by the average "egg-farmer," is systematic post-mortem examination of fowls that die. When birds are buried or burned without such examination frequently the poultryman lacks information that will aid in preventing future losses of the same nature. Only a few minutes need be spent in examining a bird. Dr. Carpenter tells just how to do it, and how to interpret the evidence discovered.***

By Dr. Cliff D. Carpenter

In Charge of U. of C. Avian Pathological Laboratory, Petaluma.

THE progressive poultryman never is "too busy" to carry on any investigation that will cut losses and increase profits. Post-mortem examination requires but a few moments and the time is shortened as one becomes experienced.

It is a mistake, however, to emphasize speed to the exclusion of thoroughness. Each organ should be examined closely. Yet this does not mean that the operator must have a scientific knowledge of anatomy. Any practical poultryman, with a little practice, can ascertain the cause of death in most cases.

In order to obtain the best results the fowl should be examined as soon as possible after death. Otherwise post-mortem changes take place and a much different picture presents itself. By this it is not to be inferred that all post-mortems must be made within one or two hours, yet it would be more satisfactory were this possible.

### TIME OF EXAMINING

Birds that have died during the night should be removed from the house in the morning and examined as soon as practicable; those dying during the day ought to be posted immediately following their discovery. If this cannot be suited to the daily routine then a definite time might be set aside each day when all birds that have died in the past twenty-four hours are examined.

No special equipment is necessary to make these examinations. Any flat surface will do for a post-mortem board. A full sized barrel stood on end makes a very good arrangement. A pair of small, round-pointed shears or scissors prove to be the one best instrument suited for post-mortem work. If they are curved, so much the better. They may be supplemented by a small scalpel or ordinary sharp-bladed knife which will be handy in many instances and will itself suffice if shears or scissors are not obtainable.

## External Examination Is Important

THE first important factor in conducting a post-mortem is a thorough examination externally. One should not be in too great a hurry to see the viscera.

Determine whether or not the bird died from an injury. Note the general condition and appearance of the bird; feel the breast bone to determine the loss or nonloss of flesh. Open the mouth; note presence of different forms of canker. The one that is most vital to poultrymen is that obstructing the opening of the trachea or windpipe Then, too, as canker is an accompanying lesion of chicken-pox, that disease should be considered.

### OBSTRUCTION OF WINDPIPE

Look for a mechanical canker in the cleft of the roof of the mouth. This is usually the result of a piece of grain or hull becoming lodged therein. If, in any way, the opening of the trachea becomes closed or obstructed in such a manner that it is impossible for the bird to breathe, death will follow immediately, as all air taken in must pass through this opening, which is seen at the base of the tongue.

Examine the vent and note discharges, color and consistency. In a laying flock a white, chalk-like discharge ofttimes is the result of an inflammation of the uterus, and not a form of diarrhoea. The droppings may be thin or quite soft and streaked white, due to the uterine discharge becoming mixed with the droppings.

Look for lice. This is especially important for information to clean up the rest of the birds. Quite often do setting hens leave the nest or die on it as a result of mites (blood suckers) and lice. Having gained all the possible knowledge relative to the external pathology, the operator then should proceed to examine the internal organs.

## How to Examine Internally

TO open the bird, place it on its back, and, grasping the legs, one in either hand, pull each outward from the body until the skin gives way. With the fingers push the skin away from the keel in all directions until the crop and practically all the abdominal and thoracic (upper or lung cavity) muculature (muscular tissue) are visible.

This gives the operator a good, clear field to open the abdomen. Break down the hip joint of each leg so the cadaver (body or corpse) will remain placed. If you are using a pair of shears or scissors, place the bird on its back, the posterior (rear) end nearest you, and grasp the end of the keel with the thumb and forefinger of the left hand, cutting through the muscles and peritoneum (membrane lining the body cavity) at this point. Continue the incision along the edge of the keel on both sides, cutting through the ribs to the point where the keel is attached only by muscles. Turn the keel completely back upon the neck, exposing clearly the abdominal and thoracic organs.

As this article is for the practical poultryman, the writer will pass over the technique of taking cultures and "smears," as would be done at this point were a bacteriological examination to be made.

### STUDY OF VITAL ORGANS

The liver is the first organ to be examined. Normally, this is dark, reddish-brown in color. Except in a few specific instances, liver changes prove little to the unskilled nontechnical poultryman, as this organ reflects disturbances so easily, and thus may deceive rather than enlighten the operator.

In contrast, however, the liver changes are valuable to the investigator in the laboratory with equipment at hand for taking cultures and even sectioning the tissue to examine the cell changes through the microscope. However, the liver is quite apt to show lesions of tuberculosis, if it is present at all.

The operator will note small, usually round, raised nodules or areas, light yellow or dull grayish colored. These may vary from the size of a pin head to that of a silver dollar. Often the lesion will be seen to extend entirely through the lobe from the dorsal to the ventral surface. Usually there is more than one present, and the number may be countless with the unaided eye. Cutting through these lesions or nodules, one finds a caseous (cheese-like) almost gritty substance. This is due to the destruction and caseation of the tissue cells.

Other liver changes, such as light-colored or "spotted" or "rotten" liver indicate usually the result of malnutrition or improper feeding.

The heart and lungs likewise aid the

(Continued on Next Page)

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men but slightly in determining the cause of death.

## Removal of Abdominal Organs

THE operator now is ready to remove the abdominal organs from the body cavity. This is best done by removing or tearing away the thin tissue which covers and attaches the intestines. This should be done on the operator's right, and the organs turned to the left, freeing them as much as possible. The ovaries, oviduct and uterus will then be in view and very noticeable if the bird is a producer.

As the abdominal organs are turned aside, look for yellowish deposits over them. This is usually the result of the so-called ruptured ova or "broken yolk." In fact, it may be an "escaped" ovum, or the result of a ruptured uterus, ofttimes called a "broken egg."

In the former case it is only the yolk that is present and this deteriorates rapidly and causes an inflammation and generalized peritonitis (inflammation of the lining), with death following. In the latter case one finds shell material present, besides this yellow or cheese-like deposit, which indicates that the egg was formed and then, for some reason, broken as the uterus became ruptured, or soon after.

The so-called "broken yolks" or ruptured ova are quite often a result of feeding too great a percentage of concentrates — usually meat/or fish in some form. The theory has been advanced that as a result of this practice, yolks are formed faster than the albumen and shell can be added and therefore a yolk enters the oviduct before the one preceding is far enough advanded, and, during the daily exercise of the bird, it works back to the opening of the oviduct and escapes into the abdominal cavity.

Another theory is that the yolks rupture before they get to the oviduct. This is most commonly seen during the heavy laying period. The symptoms usually are few, the birds quite often dying on the roost. They act droopy and drop their heads a few hours before death, and the comb usually turns a dark purple.

### AN IMPORTANT LESSON

The correction of this disturbance is dependent almost entirely upon feeding. It may be necessary to lighten the ration by removing some or all of the heavier concentrates, or by substituting bran or mill run for some of them. The bi-polar organism, Bacillus avisepticus, has been found on many occasions in connection with ruptured ova, the correct significance of which has not been satisfactorily explained as yet.

The spleen may be examined next and here again little information can be obtained. Tubercular lesions, however, may be present, and these are often clearly visible. The normal appearance is a nearly round purplish-brown-colored organ from ¾ to 1½ inches in diameter.

### EVIDENCE OF WORMS

The digestive tract is next inspected. The intestines should be opened their entire length and examined for round worms, and, if they are found, the flock should receive treatment as soon as possible. The intestine may be actually obstructed by these worms and the bird die as a result. However, even a smaller number may produce fatal results.

Tuberculosis quite often presents itself in nodular form on the intestinal walls. These lesions are quite often seen in connection with those in the liver or spleen.

In the gizzard, one should note the amount of grit and grinding material and the condition of it. Usually, the grit particles should not be too smooth. Likewise the grit should be examined as to amount and kind of material present.

## How to Study Young Chicks

THE post-mortem examination of chicks does not reveal as much information as that of a matured fowl, and yet it is of importance and value.

Chicks that die during the first week of their existence do so as the result of many causes. Faulty incubation, chilling, low vitality stock and too early feeding contribute largely to the fatalities. Bacillary White Diarrohea causes a heavy death rate in some localities. One notes the white, creamy discharge from the vent; unabsorbed yolk in the abdominal cavity; the liver and other organs usually light colored and soft.

A bacteriological examination, however, is necessary for a positive diagnosis. This infection is not present on the Pacific Coast to the extent it is on the Atlantic, where it is a serious menace, as the infection still exists in chicks recovering from the disease and is harbored in the ovaries of the female. A large percentage of the eggs laid by a mature fowl having recovered from the disease contain these organisms, and the chick is hatched with the infection present.

The Coccidiosis danger period is from four to eight weeks of age. Post-mortem examination shows intestinal inflammation especially localized in the Ceca or "blind guts," which sometimes are blood stained at this point and usually very hard. Microscopic examination reveals in these contents numerous eggs of the causative agent, Eimeria avium, and a positive diagnosis is only obtained by resorting to this method. However, bloody droppings is a sure symptom of the disease and the poultryman should not wait for a bacteriological examination if he sees bloody droppings.

### CHICKEN POX

There are many individual diseases or causes of death which have not been taken up in this article, but it would be impossible to consider them all. The most important to the poultryman have been taken up, with perhaps the exception of chicken pox, and this can be diagnosed by an external examination. The warts or scablike tumors appearing on the comb and watties are indicative. These also may be present around the eye on the ear lobe or different areas of the skin. Also, canker in the mouth may be associated with the finding of the pox tumors.

Judging from the ground covered, the layman who has not been in the habit of examining dead birds, might become discouraged. Yet the details involved in reading the above eliminate themselves in actual practice, and one soon finds himself quite familiar with the anatomy and pathology of a fowl.

---

THE evil effects of late hatching are strikingly shown in practical culling work among farm flocks. The trained observer can pick out the late-hatched flock by the lack of size, early moulting tendency and poor body capacity of the hens. Late-hatched chickens also are subject to more warm weather diseases than those hatched early. In a flock of late-hatched birds a large percentage of the hens must be thrown out as culls.

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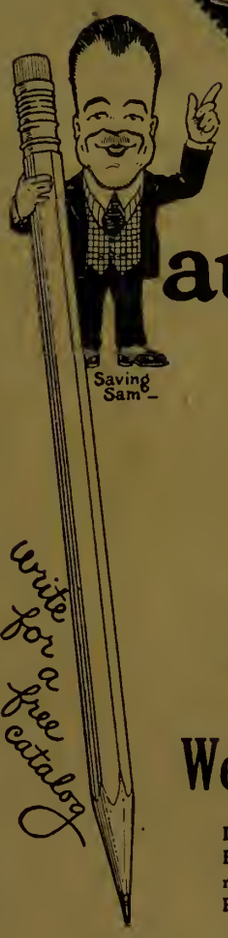
**MUST HAVE SPOKEN OUT OF TURN!**

"We have the red peril and the yellow peril—and I am right here to state there is a black-and-blue peril," remarked Jeremiah Jabber, nursing his injured optic.

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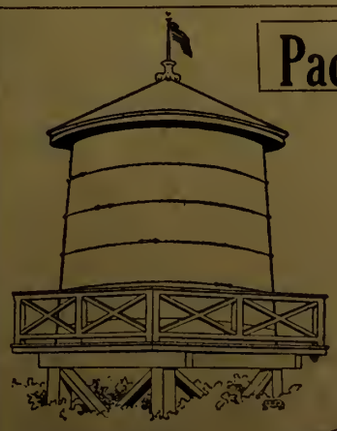

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# How a Novice Succeeded With Poultry

By E. G. Sanborn

STARTING with an investment of $1 in a setting of eggs, and with no knowledge of the poultry business, John Roy of Alhambra, a suburb of Los Angeles, has developed within three years one of the most successful intensive poultry "farms" in Southern California.

Having completed a bungalow home upon his two acres of land, his first act, after deciding to embark upon the poultry enterprise, was to enroll in the free correspondence course of the University of California. Also, he read all the bulletins and helpful articles obtainable. His capital was limited and it was necessary for him to continue his work in the city.

"That was the beginning of my career," says Mr. Roy, "and such success as I have attained I owe to the correspondence study and to my faith in that one dollar's worth of white leghorn eggs."

The following season he purchased an incubator and hatching eggs as well as day-old chicks. Mr. Roy asserts that his first hatch was an inspiration to continue in his chosen profession, averaging 92 per cent from 350 eggs.

### FAILURES WERE LESSONS

However, not every hatch was as successful as this first one, and he has had failures and unsatisfactory results, as does the beginner in any business with which he is not familiar. Nevertheless, the experiences were lessons and he mixed common sense and good judgment with the information derived from the pamphlets of the University and United States Department of Agriculture, with the result that today failures are practically unknown on the Roy ranch.

Incubators, eggs and good hatches, however, were not the only items to be considered in the beginning. Brooders and later laying houses were needed for the flock. But Mr. Roy, with the aid of his father, built his own houses, in which he has incorporated many modern labor-saving features.

Running water is piped to each yard, while the houses are wired for electricity and the brooder house piped for gas. The latter building, together with the incubator cellar and a series of laying houses, are under one roof. Other buildings, modern in every detail, are devoted entirely to laying hens.

One feature which he says has saved him much time and labor is the construction of the roosts over a concrete bin, the floor of which is kept covered with a layer of straw. These bins need be cleaned out only twice a month. This is done by means of doors in the rear of the house.

### FOOD FOR CHICKS

Asked what feed had proved most satisfactory for baby chicks, Mr. Roy stated he uses a corn-meal pone which originated in his own kitchen. The pone is made of 4 cups of yellow corn meal, 4 cups of flour, 12 infertile incubator eggs, one-half teaspoon baking soda and sufficient water to make a batter. This is baked, and then run through a food chopper and fed to the baby chicks five times daily for 15 minutes at a time. He attributes freedom from diarrhoea in his flock to the daily feeding of buttermilk. Fine sand and plenty of fresh water are kept before the chicks.

Hoganizing is practiced and the culls disposed of each fall, as Mr. Roy considers much depends upon the careful selection of hens. Too many farm flocks, he asserts, include non-producers and drones, which usually are responsible for limited profits.

"At the present high price of grain, no poultryman can afford to feed a flock of non-producing hens, so that the value of hoganizing cannot be emphasized too strongly," he adds.

### BOOKKEEPING ESSENTIAL

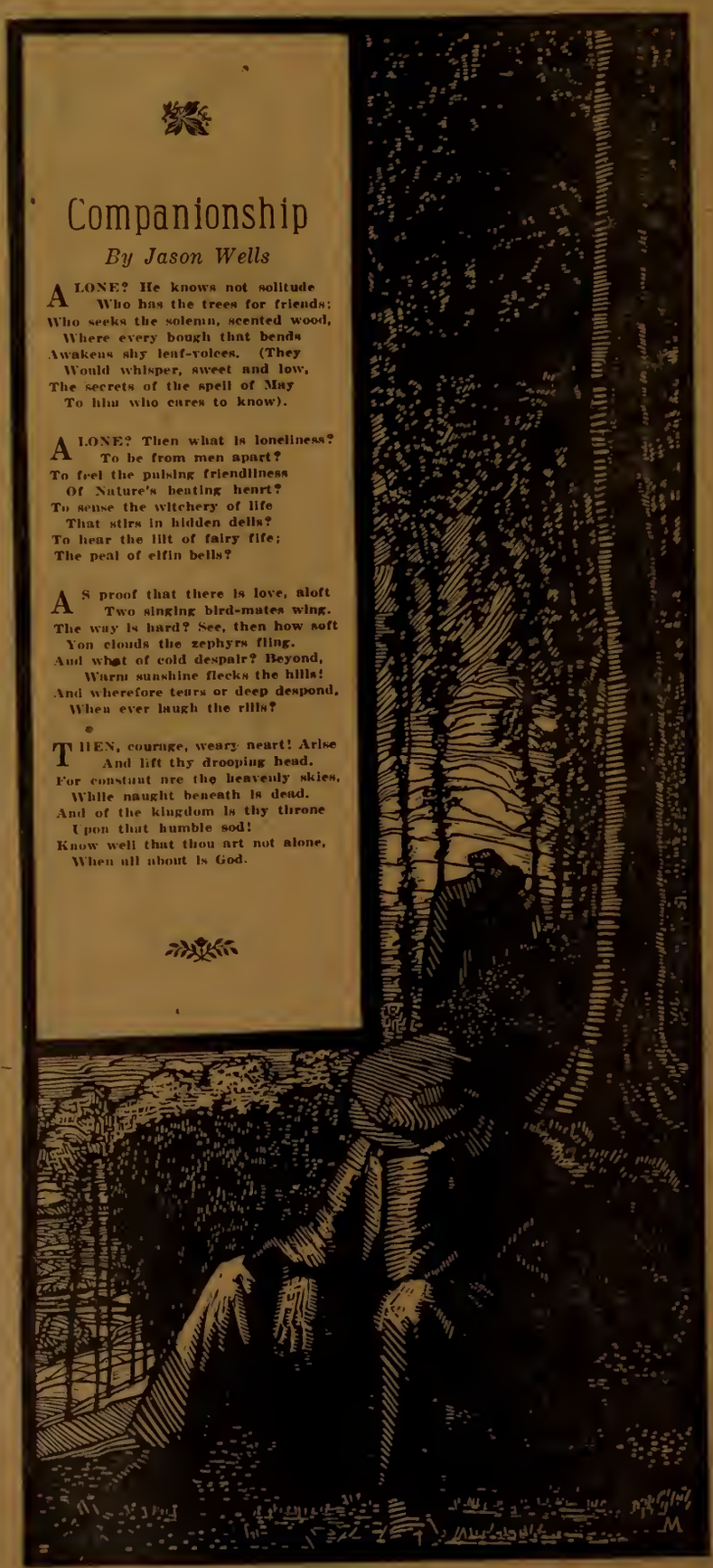
Mr Roy emphasizes the necessity of keeping books. He has a simple method by which he records the daily egg yield, the number of dozen sold each day, and the returns, as well as the stock disposed of.

On the debit side are listed the cost of feed and equipment, and all general expense. Judging the poultry business by the high and low market reports gives one a poor idea of the possibilities of making money, he asserts, and no poultryman should attempt to conduct his business without a system of bookkeeping by which he can account for the income and the expense, so as to figure profit and loss on the basis of his investment.

A profit of about $2.10 per hen per year is the flock average revealed by Mr. Roy's books. He further adds the income from his flock was sufficient to pay off the remaining debt on his two-acre ranch at the end of a yearr, and in addition, enabled him to make a deposit on a five-acre tract which he purchased for investment.

In his estimation, a two-acre tract of ground is sufficiently large for a poultry ranch. Enough houses can be built upon this ground to shelter from four to five thousand laying hens, as well as provide space for brooder houses and pens for the young chicks, he claims.

Mr. Roy's advice to the novice is to take the correspondence course prepared by the University, to exercise common sense and good judgment and to not be afraid of work, after which he feels it will be possible, as in his own case, to answer in dollars and cents, the question, "Is there money in poultry?"



## Companionship

*By Jason Wells*

ALONE? He knows not solitude
Who has the trees for friends;
Who seeks the solemn, scented wood,
Where every bough that bends
Awakens shy leaf-voices. (They
Would whisper, sweet and low,
The secrets of the spell of May
To him who cares to know).

ALONE? Then what is loneliness?
To be from men apart?
To feel the pulsing friendliness
Of Nature's beating heart?
To sense the witchery of life
That stirs in hidden dells?
To hear the lilt of fairy fife;
The peal of elfin bells?

AS proof that there is love, aloft
Two singing bird-mates wing.
The way is hard? See, then how soft
Yon clouds the zephyrs fling.
And what of cold despair? Beyond,
Warm sunshine flecks the hills!
And wherefore tears or deep despond,
When ever laugh the rills?

THEN, courage, weary heart! Arise
And lift thy drooping head.
For constant are the heavenly skies,
While naught beneath is dead.
And of the kingdom is thy throne
Upon that humble sod!
Know well that thou art not alone,
When all about is God.

Decoration Courtesy Harper's Bazar and J. J. A. Murphy. Written for Orchard and Farm. Copyright.

## Lights in Hen House

MANY poultrymen have found the use of artificial lights in the laying houses most beneficial, but some have made the mistake of overworking their hens. Through experiment I have found if the use of the lights is commenced in October and continued until about the first of April, then gradually reduced about 10 minutes a day, the results have been most satisfactory.

Sudden discarding of the lights at too early a period during the spring has been one of the common causes of putting birds out of condition and throwing flocks into an unnatural spring moult.

Morning lights are superior to evening lights, and I turn mine on at about 5 o'clock in the morning so that the birds will have thirteen hours of light and eleven hours of darkness. Do not make the mistake of giving them too much light, say fourteen, fifteen or even sixteen hours per day, and do not aim for more than a 50 per cent production during the winter months up to January.

When morning lights are used sufficient feed and water should be available. The birds should be occupied as soon as they leave the perches if satisfactory results are to be obtained. I fill all hoppers in the evening after gathering the eggs, as well as putting out a good supply of green feed.—Mrs. C. J. Malley, Wilton, Cal. (H)

## Baby Chick "Don'ts"

Don't overheat chicks.

Don't let them get chilled.

Don't neglect the daily supply of fresh water.

Don't feed sloppy or decayed food to chicks.

Don't neglect to supply them with grit, shell, bone, charcoal.

Don't fail to feed them sour milk or buttermilk, if possible.

Don't listen to everyone's ideas and suggestions on "a better way."

Don't let mites and lice get a start in the brooder.

Don't neglect to keep everything in a sanitary condition.

Don't fail to keep your chicks growing all the time.

Don't neglect the use of reliable feeds.

## Size of Incubators

HOW big an incubator shall I buy? This problem early confronts the novice. A fair estimate for a poultry farm is an incubator of one egg capacity per laying hen, provided about half the flock is to be renewed yearly and no outside hatching carried on.

A cheap machine frequently proves unreliable and therefore is not economical. About as much time is required to care for a 60 as a 360-egg machine. Although special conditions may make it advisable to purchase a small outfit, the incubator of 150-egg capacity is suggested as the best all round type for the farm flock or small poultryman.

WHEN erecting poultry houses, instead of elevating the roosts at the back of the house make them all the same height from the ground and much crowding of the chickens will be avoided.—Beverly Young, Arvin, Cal. (H)

# The American Housewife—Insures the Success of Your Orchard

## AN OPEN LETTER TO FRUIT GROWERS:

### *DO YOUREALIZE—*

—that there are fifteen million —and more—of good housewives east of the Rockies, feeding 80% of one hundred million people?

—that every one of these housewives is striving to improve the dietary of her household, and increase its wholesomeness, consistent with economy?

—that the fruit foods you produce can be used green, dried or canned, as staple food in innumerable ways, ECONOMICALLY, and at a SAVING IN LABOR?

—that every one of these housewives has an intense, romantic interest in California and your products?

—that of these fifteen million housewives, the great majority do not employ any one of the numerous California Fruit Foods excepting on rare occasions, and many never?

—that not one out of a thousand of our very best housekeepers is AWARE OF THE INNUMERABLE uses in which every one of our staple California Fruit Foods can be employed economically, as well as wholesomely?

In our own household, consisting of the writer, Mrs. Bergtholdt, and half a dozen of assorted sizes and ages, Mrs. Bergtholdt employs annually on the family bill of fare, approximately fifty pounds each of Almonds and Walnuts, ten gallons of Ripe Olives, several hundred jars of jams, jellies and preserved fruits, as well as 150 pounds of Raisins, Prunes and other dried fruit, ten to fifteen boxes of Apples, eight to ten boxes of Oranges, four or five boxes of Grapefruit, and throughout the summer and fall months all that we can consume of other fruits in season. She does this economically. She does this at A GREAT SAVING IN LABOR. Every article used is not alone NUTRITIOUS and WHOLESOME, but APPETIZING.

Do you realize that a book, "THE STORY OF CALIFORNIA FRUIT FOODS," placed in the hands of every housewife can be made the connecting link that would eventually make the 120 million people in the United States and Canada daily consumers of the products of your orchard?

THIS BOOK, EDITED BY THE BEST EDITORIAL WRITERS, HANDSOMELY ILLUSTRATED, AND CONTAINING INNUMERABLE RECIPES COMPILED BY THE BEST CHEFS, WOULD NOT ALONE BE INTENSELY INTERESTING AND INSTRUCTIVE, BUT WOULD BE AN INDISPENSABLE NECESSITY TO EVERY HOUSEWIFE.

This book should be printed in several foreign languages for the purpose of developing the consumption of your fruit products among the foreign-born people of our own land who are economically prosperous, and to be used also in exploiting the consumption of your fruit products in the markets reached by the export trade.

Every kind of fruit and nuts grown in your orchards should be given space in this book, according to the volume of the individual branch of the industry.

The initiative should be taken by and this proposed plan be put under way by your various co-operative fruit marketing and fruit manufacturing organizations.

The organization to put this over should be comprised of representatives from the organized branches of the industry.

Inasmuch as every man, woman and child in California will be directly benefited from the assured prosperity of your orchards, a drive should be made to enlist the financial support of every commercial body in every city, town and county in the State.

SOME OF THE MARKETING ORGANZATIONS ARE PUTTING FORTH COMMENDABLE INDIVIDUAL EFFORTS IN ADVERTISING YOUR PRODUCTS. THESE SHOULD BE CONTINUED. THIS, HOWEVER, IS NOT SUFFICIENT.

DO YOU REALIZE, MR. FRUIT GROWER, THAT THE AMERICAN HOUSEWIFE IS RIGHT AT YOUR DOOR, READY AND WAITING TO CONSUME YOUR PRODUCT IF YOU WILL BUT SHOW HER HOW TO DO IT? "THE STORY OF CALIFORNIA FRUIT FOODS" IS THE CONNECTING LINK. DO THIS AND WITHIN TEN YEARS YOU WILL HAVE CREATED A DEMAND THAT EVERY ACRE ADAPTED TO FRUIT GROWING IN CALIFORNIA, PLANTED TO FRUIT, CANNOT SUPPLY.

Done collectively by all branches of the industry, the burden of cost, will be infinitesimal.

The increased proceeds each year from the sale of your products will amount to more, by several times, than the expense of the undertaking.

The value of your orchard properties and every acre of fruit land in the State will in ten years be enhanced many, many times the expense of the undertaking.

Every factor engaged in the distribution of your products would be an agency to co-operate in placing a copy of this book in the hands of every housewife.

The funds can be provided, the work under way and the distribution commenced within a year, so that you can begin to realize from the benefits of the first distribution of this book on yeur crop of 1922, and within a period of four years, at most, a copy of this book can be placed in the hands of every housewife.

MY MESSAGE TO YOU IS THIS:—IF YOU WILL EXERCISE THE INITIATIVE AND THE COURAGE TO CARRY THIS PLAN OUT AND PUT IT OVER RIGHT, A DEMAND FOR YOUR PRODUCTS WILL BE CREATED THAT WILL ABSOLUTELY AND PERMANENTLY INSURE THE PROSPERITY OF THE FRUIT INDUSTRY.

There never was, nor is there now, an over-production of fruit; and there never will be if you employ THIS MEASURE OF CONSTRUCTIVE COMMON SENSE in instructing the people of America in the merits and use of the products of your orchards.

When the writer made his first venture in fruit growing on an investment of seventeen summers, a roll of blankets and a husky desire for a job, the old pioneer who then employed him punching mules advised him to keep out of the fruit business; that there was an over-production. I have heard this reiterated many times since. During these years the production of California fruit has increased ten-fold.

My friends called me optimistic in the recommendation that I have made for their planting and in the advice that I have given. An optimism, however, that has led to the planting of several thousand profitable orchards throughout California, IS BASED ON SOUND LOGIC.

I am not writing this to sell trees. Every word of this message COSTS US GOOD MONEY. The success of the California fruit industry has been and IS MY ONE WORK, and because we, ourselves, aside from our nursery business and fruit shipping, have over 1300 acres in orchard.

It is up to you, together with ourselves, to put this over.

Take this up for action at your Farm Bureau. Write the editors of your horticultural publications. Write the management of the marketing organizations with which you are connected. Urge them to co-operate with you and with every factor in the fruit growing business to put this over. Put your shoulder to the wheel, and keep it there—don't let go—hang on—pull hard with me until we get an organization to work that will put this over.

For many months I have discussed this project with my wife. She has named it the "Bergtholdt Plan." Talk it over with your wife.

I WANT 25,000 OF YOU FRUIT GROWERS TO WRITE ME WHAT YOU THINK OF MY PLAN. YOUR COMBINED 25,000 OPINIONS ON THIS VITAL ISSUE, COMPRISING THE BEST THOUGHT OF 25,000 INTELLIGENT FRUIT GROWERS WILL, BOILED DOWN, FURNISH IDEAS AND SUGGESTIONS INVALUABLE TO THE ORGANIZATION THAT WILL BE CREATED TO PUT THIS OVER.

If you will do this, and by this means employ the connecting link—"THE STORY OF CALIFORNIA FRUIT FOODS"—between your orchard and ours, and the American housewife—your success in fruit growing, and ours, will be assured.

So GET BUSY.

J. E. Bergtholdt
Secy. and Mgr.

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Your "Selected" Farm will be carefully chosen from the cream of the richest wheat and cattle country in America. Experts representing 17,000 miles of railway will help you get just the farm that meets your needs. This service is absolutely FREE. You can investigate as many districts as you desire.

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Western Canada extends a helpful hand to you. Friendly neighbors with the same language and customs—splendid schools, churches and social life—warm, sunny, growing summers and dry, healthful winters—law and order—efficient labor supply await you in this wonderfully prosperous last west.

Taxes are Low

Western Canada taxes fall lightly on the farmer. There is a small tax on land, but buildings, improvements, animals, machinery and personal property ARE NOT TAXED AT ALL. There is no increased taxation on farm lands to meet war expenditures.

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Superintendent of Resources
Canadian National Railways
Dept. 2252 , Marquette Building
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Dairying is very profitable. That soil and climate are well adapted to it is shown in greatly increased production and high quality maintained. A world-wide market awaits all that Western Canada can produce.

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Reduced railway rates will be made for landseekers and their effects to encourage inspection of the SELECTED Farms along the lines of the Canadian National Railways. Personally conducted excursions for this purpose also will be arranged. Full information will be sent free on request. Write or Mail Coupon To-day.

DEWITT FOSTER
Superintendent Resources,
Canadian National Railways,
Dept. 2252 , Marquette Bldg.,
CHICAGO

Please send me free and without obligation to me, complete information on the items concerning Western Canada checked below:

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.....(2) Reduced Railway Rates for Landseekers
.....(3) Business and Industrial Opportunities
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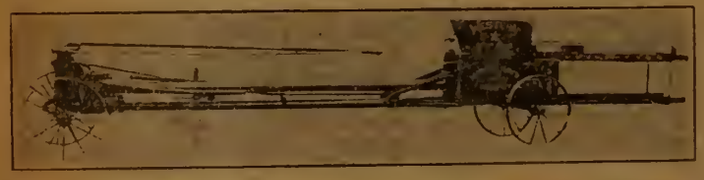

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IN ANSWERING ADVERTISEMENTS PLEASE MENTION ORCHARD AND FARM

# What Makes a Good Farm Lease?

By Willard G. Cram

THE importance of an adequate and proper lease is threefold: It will be effective through complying with the law; it will prevent misunderstandings with their resultant difficulties, and will provide for necessary care and productivity of the property. Thus the great asset of good will is engendered and the world at large benefited.

The law makes certain requirements as to leases; aside from these requirements the lessor and lessee create their own law by their contract of lease. A lease of lands for a period longer than one year is void, unless in writing and properly signed by the parties. It is not necessary to have the lease recorded in order to make it effective as between the parties, but if it is recorded, the lessee has a better standing, as this act gives all the world notice of his leasehold interest. If a lease is to be recorded, however, it must be acknowledged by the parties to be charged.

A lease of farm lands for a period longer than fifteen years is void (with exceptions noted below).

The property belonging to an incompetent, a minor or municipality cannot be leased for a period longer than ten years, excepting a sewer farm owned by a municipality, which may be leased for twenty-five years, and certain other city property may be leased for a longer period.

### Your Farm Lease

*WAS ITS FULL MEANING understood before it was signed?*

*Is it so written that its meaning will be clear at any later time?*

*Does it give the tenant a reasonable opportunity to make a comfortable living and to get ahead?*

*Does it require proper and conservative care of the premises leased?*

*Are all desired reservations made?*

*These questions are serious to thousands of land-owners and tenants. It has been estimated that over 40 per cent of the farm land in the United States is operated under lease.*

*Additional information on this important subject is given in Farmers' Bulletin No. 1164, obtainable free on application to the Division of Publications, U. S. Department of Agriculture, Washington, D. C.*

*Mr. Cram, this month, gives invaluable legal advice, this article being one of a series which he is writing especially for ORCHARD and FARM.—Editor.*

### UNUSUAL CASES

Lease of lands belonging to an estate of deceased persons, a minor or an incompetent must be made under order and sanction of court and in strict compliance with the law. Therefore, one should not lease such lands unless he secures the advice of a competent attorney.

Lease of community property for a period longer than one year to be effective must be signed by both husband and wife.

If, on the termination of the lease, possession is not given immediately, the lessor should give written notice to quit and surrender possession, as a farm lease under provision of law may renew itself for one year. For example, if A lease acreage to B for a certain term and after expiration of the term if B remain in possession for sixty days without a demand to surrender possession or to quit, B shall be entitled to hold the land for a full year longer at such rent, etc., as the original lease provided.

### ORAL UNDERSTANDINGS

A lease should contain and definitely provide for all special understandings and agreements the parties may have had in mind and orally agreed upon. The law presumes that what was agreed upon, and ALL that was agreed upon, was reduced to writing, and only in exceptional cases will oral agreements vary the terms of a written instrument in case of a suit. The conditions and provisions will vary largely, depending upon the kind and character of the land leased, the purpose for which it is to be used, the crops growing or to be planted, etc. Among the points which should be considered and provided for are the following:

The names of the parties should be correct and should be signed as appear in the body of the instrument. The lease should show the lessor's name as his title to the land leased appears of record, even if it differs from his usual form of signature. If he has a record title as J. S. Black, he should sign his name, "John S. Black, sometimes known as J. S. Black."

The term of the lease should be inserted, together with the day of surrender and termination.

The rent should be specified, including the kind (whether money or crop), with the times and place of payment.

The land should be definitely described by legal subdivisions; or by such metes and bounds that would enable a surveyor to find the tract.

The lease should state what labor, materials, seeds, trees and equipment must be furnished by each party respectively; what care and attention is to be given to all equipment, implements, fences, houses, etc. The parties should take an inventory at the date of the lease, covering such equipment, personal property, etc., and mention the same in the body of the lease and attach a copy to the lease.

### DUTIES OF TENANT

The duty of the care, cultivation, attention, harvesting and marketing of crops should be specified. These things will depend largely on the kind and nature of the crops. In vineyards, for example, the pruning and the number of times the vines should be cultivated, irrigated or treated to destroy and prevent pests, should be provided for.

If any dead or missing vine is to be replaced, the lease should so state, and also provide at whose cost and expense these things are to be done or provided. A citrus grove would have its peculiar requirements, and likewise other lands with various crops.

If the lands are under irrigation, the lease should state who is to pay for the water and should designate that the same be paid when due and before delinquency. While taxes on the land generally are paid by the lessor, it is well to state who is to pay each general, special and personal property tax. These matters become especially important in cases of increase in cattle and hogs, where the parties have a common interest.

If the land is alfalfa or dairy land, the lease should specify whether the same is to be grazed by the animals or whether they are to be confined to a certain field and fed from the harvested crop, etc.; whether the alfalfa is to be renewed, plowed up or cultivated, and at whose expense for both labor and seed.

### ROTATION OF CROPS

Where the land is of a general productivity and the crops as a rule are annual, the distribution and rotation of crops should be especially provided for; otherwise the tenant would be entitled to plant the same crops in the same fields from year to year and in the long lease the land would become greatly impoverished. Many landlords insist that no fertilizer or straw be removed from the premises and that such material must be scattered and distributed in certain ways at certain times upon certain fields.

(Continued on Next Page)

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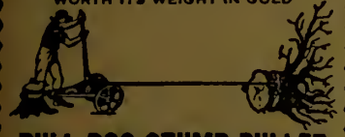

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**Money-Saving AND Money-Making Methods**

**Tillage, Not Weather, Controls Crop Yield**
**Campbell's Progressive Agriculture Tells How**

Any farmer with ambition to make the most of his labor and realize the greatest returns for his investment will find in this volume a priceless guide for Dry Farming.

It is needless to say that the advantages to be gained from a single practical idea, taken from this book and put into practice, is worth many times the small expense incurred adopting the more approved methods. Planting without proper preparation of soil; planting at wrong time or in wrong way; wrong methods in cultivation, are common occurrences which a better knowledge of these subjects could easily prevent. It is poor economy indeed to save five dollars at the expense of a hundred.

ONE PRACTICAL IDEA TAKEN FROM THIS BOOK WORTH MANY TIMES THE COST OF ENTIRE VOLUME.

ORCHARD & FARM, LOS ANGELES, CAL.
Enclosed find $1, for which send, postpaid, "Campbell's Progressive Agriculture." Included is one year's subscription to Orchard and Farm. It is understood my money is to be returned if not fully satisfied.
Name .....
Address .....

In the case of lands leased for long periods and under agreements which provide that the lessee shall make certain improvements, additions and enrichments, the lease should provide for reimbursements to the lessee in case his lease terminates by sale or expiration before the full benefits have been received, and in such proportion as the benefits have been received.

OPTION TO BUY LAND

If the right to sell during the term of the lease is retained with possession to be given up by the lessee, the lease should give the lessor a first option to buy the land at such price as may be offered and accepted. It should also provide for remuneration for work and labor performed and material used, of which the lessee has not received full benefit, or for a certain fixed amount of money.

The lessee should be required to keep simple but adequate books of accounts showing all expenditures, receipts, increases in stock, etc. This is especially important in leases where payment is by share and proportion of net or gross proceeds.

All leases should be drawn and executed in duplicate in order that each party may have a signed copy. The lease should provide for enforcement of its terms and contain a provision for adequate costs and attorney's fees in case payment is not made or the possession of premises not delivered up at the termination of the term.

WITHOUT LEGAL ADVICE

If the lease is simple and the parties cannot or will not seek competent advice they may run the risk of their own work by drawing a "home-made" lease. In such a case I would suggest that points having to do with the care and attention to be given crops be incorporated in terms of general importance. For example: "The lessee shall farm and cultivate the land leased; care for, attend to, market and deliver the crops, etc., in a farmer-like manner and in accordance with the customs approved and used by the best farmers (or ranchers) in the vicinity where the land is situated." This provision at least will give a chance in case of disagreement to prove what was done and whether it was done in a proper manner.

SHOULD MENTION CONTRACTS

In the case of lands and crops that have been "signed up" with such co-operative associations as the raisin, prune and apricot, citrus, etc., and are subsequently leased, the lease should mention the contract and bind the lessee to its provisions.

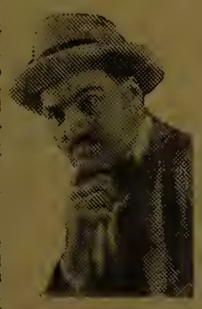
The lessee should take care that his lessor has sufficient title to the lands leased to protect him during his term.

If these matters are taken care of by the parties and they have threshed out all conditions before signing the lease, the liability of any trouble is reduced to a minimum. The language should not be technical, but such that "a wayfaring man, though a fool, would not err therein," and then both judge and jury as well as the parties themselves cannot turn or twist the language to mean more than one thing.

# Raising Cavies on a Large Scale

By Dr. J. A. Roberts

WHILE the cavy or guinea pig was regarded a few years ago as a pet for children, today hundreds of men and women are engaging in the business of raising these little animals to supply the increasing demand from laboratories.



Dr. J. A. Roberts

They are used in manufacturing the serum administered as preventives of various diseases. During the war the soldiers received many injections of serum and army sanitary and medical officials attribute the remarkable freedom of the American army from camp fevers and other diseases largely to this precaution.

There is a great scarcity of guinea pigs throughout the country, the demand being constantly ahead of the supply. As a result, a profitable business is enjoyed by many farmers, professional and business men; in fact, persons in all walks of life, some of whom have big establishments.

A. C. Mentry of Zelzah, Cal., is raising cavies on a very large scale and has buildings constructed for the purpose. He has cut down his acreage and is devoting more time to the raising of these little animals. He figures a net annual profit of $12 a year on each female, on an investment per head of only $2.20. He raises all the feed necessary for them, as they are very small consumers of food stuff. This breeder has nearly one thousand breeding cavies.

One man can care for 2500 breeders by devoting all his time to them and this gives him plenty of time to raise the necessary feed.

## *Friendly Expressions From "Our Family"*

"I AM enclosing a money order for $2 for subscription and the names of thirty-five friends to whom I would like sample copies mailed," says E. L. Kiley, a San Diego horticulturist and tree surgeon, who writes as follows to ORCHARD and FARM:

"I make it a practice when I see a good article in a magazine or paper that I think will appeal to customers to notify them, as I consider it as much to my advantage as to theirs.

"I am engaged in the practice of horticulture and the article on roses which appeared in the February issue is the finest I have seen in many years. So impressed was I with it that I called up a number of my customers and suggested that they purchase the issue on the news stands."

**Renews Subscription**—"I am renewing my subscription to ORCHARD and FARM, as I am anxious to continue receiving your valuable paper." — Ed Thomas, Oleum, Cal.

**Appreciation**—"I knew nothing about gardening until I read ORCHARD and FARM'S valuable garden tips. Now I am complimented upon my garden and I am ready to give your magazine any boost I can."—W. Cozens, Watts, Cal.

**Information Valuable**—"I cannot afford to miss ORCHARD and FARM'S helpful information."—J. F. McNeil, Death Valley, Cal.

**Enjoyment**—"I like ORCHARD and FARM so much that I enclose check for a year's subscription for a friend."—Annette E. Saxton, Nyala, Nev.

**Indispensable** — "I cannot get along without ORCHARD and FARM. I lost the last issue. Please send me another."—S. H. Hall, Chula Vista, Cal.

# Prompt Gopher Eradication

On April 2, 1921, our illustrated "Successful Gopher Trapping" article was published. April 3, Mr. J. Aschwanden of Santa Cruz, Calif., who read the article, sent us 75c for one of the **Chubbuck Double Catch Gopher Traps,** which trap went forward April 5, the day we received the order. Below is one of the four illustrations used in the article:

Catches Gophers Any Size or Age.

On April 12 we received the following letter from Mr. Aschwanden:

E. J. Chubbuck Co.,
San Francisco, Calif.

Dear Sirs—Received trap and your letter on the 7th, and on the 8th I set the trap seven times and caught seven gophers all in one day, and some of those I could never get before with several different kinds of traps nor with gas. I assure you that I am highly pleased with your trap, and you can look for more business in the near future from my neighbors, as I am telling every one of them about it, and show them the good results. Thanking you very much, I remain,

J. ASCHWANDEN.

Reports like the one made by the Santa Cruz customer have been coming in from all sections. During this time we shipped a full gross **Double Catch Traps** to one California ranch. A trial test convinced the Superintendent of the effectiveness of our trap.

If you cannot secure these traps from your local Seed stores or hardware dealers, send direct to us. **Price, postpaid, 75c.**

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731 Market St., San Francisco, Calif.


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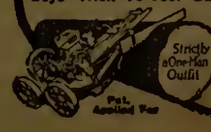


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CASE

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THRESHING MACHINES

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**"I won't be in the market for anything this year as my 32 x 54 Case is going strong *after ten years of hard threshing* and I am satisfied with the old girl yet. Just a few repairs and *she is ready to lead the others the same as always.* She runs as steady as ever and in the last six years *has threshed more grain than any two machines in Northern Bay County."***

*Mr. Haskill's Case Thresher working on farm of Mrs. Joseph Herriter, near Linwood, Mich. This outfit has threshed here for 9 years.*

Case superior construction and mechanical features are, of course, largely responsible for such service, but we can't begin to tell you about these things here. Our latest catalog has all the facts, however,—and it's nicely illustrated. Write for a copy—and ask for the name and address of our nearest dealer.

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Case Galvanized, Steel-built Threshers are made in the following sizes: 20 x 28, 22 x 36, 26 x 46, 28 x 50, 32 x 54, 36 x 58 and 40 x 62. Will thresh, clean and save all grains and seeds.

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# Success With Pigeons

(Continued from Page 11)

alley, which separates the nesting and fly rooms, but which is unobstructed because of the overhead passageways for the birds, is a trough for drinking water, which is reached through upright slats, spaced just far enough apart to accommodate the head and neck of the pigeon. This water trough is "broomed" and refilled with fresh water twice daily.

At the far side of the "fly-way" is another and larger trough, protected by a hinged cover, which may be swung inward to shut out the birds while the trough is cleaned from the outside. This trough is used as a bathing pool by the pigeons, which seldom drink from it.

Grain is fed in simple wooden boxes placed on the floor of the nesting house. The grain is kept constantly before the birds. Mr. Berry buys his grain in ton quantities and mixes the ration as follows:

| | |
|---|---|
| King Philip corn | 450 pounds |
| Kafir corn | 750 pounds |
| Egyptian corn | 250 pounds |
| Canadian peas | 80 pounds |
| Milo maize | 500 pounds |
| Turkey red wheat | 300 pounds |

(Note—The King Philip corn is used because it has no sharp points and is hard and round, and the turkey red wheat for its hardness and gluten content.)

All these ingredients are carefully selected.

"The pigeon," says Mr. Berry, "must have hard, wholesome grains clean enough for human consumption. There must be no chaff and no soft spots. The material must be free from smut, mildew or disease. Soiled or spoiled grain is the one prolific cause of pigeon disease, which is rare when the birds are properly handled and fed.

"Rolled, cracked or rough grain must be avoided; also that having sharp edges, hulls, spines or soft spots. Such feeds cause canker."

Most of the novices who secure poor results with pigeons can trace their difficulties to improper feeding, Mr. Berry asserts. He gives no table scraps, meat scrap, oil meals or green feed of any kind—simply pure water and clean grain with no roughage.

The pens are kept scrupulously clean, being renovated thoroughly several times a year, but are not sprayed except with whitewash, which is applied about every six months.

"The worst enemy of the pigeon," said Mr. Berry, "is the rat. We must fight rats at all times, and the best method of combating this pest is woven wire (one-inch mesh) which covers the dirt floor of every enclosure. Also we extend the fine mesh woven wire around the pens to a height of about twelve inches from the ground."

Continuing the policy of "prevention rather than cure," the progressive pigeon raiser keeps before the birds a medicinal grit mixture which is made up as follows:

Fine granite, finely ground oyster shell, gravel, charcoal and Venetian red (the latter acting as a crop purifier.)

Salt, according to Mr. Berry, is absolutely necessary for pigeons. In fact, it is as essential to their health as it is dangerous for chickens. It is added to the grit mixture at the rate of five pounds to 1000 pounds.

The nests consist of small boxes or pans placed on shelves in pairs and separated by board partitions. The nests are thrown away frequently and replaced with fresh boxes. Each pair of birds, however, having selected a certain compartment, continue to make their home in the same section year after year. One side of the enclosed room is given over to shelves containing these nests of which there are about fifty in each section, allowing for 100 breeders.

The perches are made of 1x4 boards placed flat. The foot of the pigeon is not so constructed as to allow it to grasp a round perch.

## How Records Are Kept

OF SPECIAL interest is the simple yet effective system of leg-banding employed in the Berry lofts. When a pair of young pigeons is mated, the male and female are given aluminum leg-bands bearing a corresponding number. Also each bird carries a second and smaller band which designates the age. By a combination of different colors and positions it is possible to distinguish at a glance birds of different ages.

A pen is maintained for "widows" and one for "widowers." If a female dies, its band is removed and the male with the corresponding number is caught and placed in the "widower pen." Then a "widow" is selected and given the leg-band of the dead female, and the two are mated. A similar plan is followed in the event of the death of a male. The leg-bands also make it possible to keep a check upon the production of each pair.

There appears to be one essential to success with pigeons which Mr Berry did not mention, but it was apparent in every move that he made about the lofts; in every sentence spoken. This essential factor is love for pigeons. Mr Berry cares for and understands the birds. He whistles in a peculiar manner when working about their quarters, having learned, he says, that this has a soothing effect not obtainable in any other way. He handles the birds freely and goes in and out of the pens without fear of injuring his "pets" by causing fright.

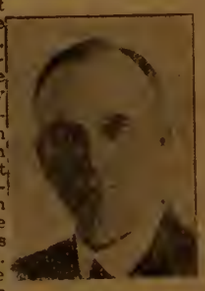
To the average farmer or fruit grower—or perhaps even to the average poultryman—the project of raising squabs upon a two-acre "ranch" may appear to be a trifling one. Mr Berry, however, has an investment of about $15,000 and values his business at a considerably higher figure. He finds the work interesting, healthful and profitable. Moreover, he has time for lodge and social duties, takes an active part in community interests, and, being in a close-in suburb, reaches city diversions and advantages in a few minutes with his automobile.

No, it scarcely would be in order to describe as "trifling" the business of pigeon raising in California as it is conducted by T. E. Berry!

# Timely Hints for Home Gardeners

By Charles L. Schufeldt

THE GARDEN PLOT is a good preventive of the anarchist plot. And in our own case it is likely to be the most profitable acreage on the farm, whether it produces food for the family table only or for the market.



C. L. Schufeldt

**The May Garden** should have been begun last fall. It takes time to prepare for a garden that will give maximum results with least effort. Yet it is possible to make a garden at once upon a piece of raw ground on which no work has been done for several months.

**Starting the Garden** in land which has not been worked recently, means first filling the soil with water to a depth of three or four feet. If the soil is wet down only a foot before planting, the weight of the water, with the "film and wick" action in the soil will draw the moisture away from sprouting seed or young tender roots so quickly that they are "stunted," if not killed.

**It Pays** to irrigate thoroughly before planting. If the soil has been plowed within a month or two and is not too hard, it is best to make ditches thirty to forty inches apart and eight to twelve deep, filling the ditches several times or running the water through them until it has penetrated to the desired depth. After the water has gone down and spread out through the soil until it has become "film water" or "soil fog," then the trenches can be filled in and the ground raked and made ready for planting.

**Time to Sprinkle** before starting a garden is when there is a growth of weeds or grass, or when the soil has not been worked at all recently, or when a crop like grain has just been removed. Sprinkling has the advan-

[illegible] some hard work because [illegible] difficult to pack or plow dry [illegible] it is very sandy. If a very [illegible] spray is used and left to penetrate [illegible] it will carry elements from the [illegible] down into the soil and thus start [illegible] ediate bacterial action, which be[illegible] the preparation of plant food for [illegible] garden you are to grow.

**A Soil Auger** is not expensive and is a very necessary tool. Use it to bore [illegible]n and pull up samples of soil from [illegible]rious depth to determine the mois[illegible]. Use it often to study the soil conditions where the roots are doing their work. A soil auger can be made at home as follows: Insert the top of an old bit (one inch or larger), into a piece of water pipe one-half to three-quarters of an inch in diameter. Heat the pipe, and weld it down around the square end of the bit so it can not turn in the pipe or "step out." It is not necessary to make a real weld, and the heating can be done over a gas or gasoline flame or otherwise. Use a tee on the other end of the pipe and place in the two ends of the tee, short pieces of pipe about 10 inches long for handles. The auger should be at least 48 inches long. In using it do not try to bore down very deep at once, but pull out a little soil at a time until the desired depth is reached.

**Make Your Seed Sprout Quickly** by forming a shallow ditch where seeds are to be planted; run into it a small stream and as soon as the water has disappeared into the soil, plant the seed on top of the wet dirt, covering with soil which is crumbly-moist (not wet and not dry.) Do not make the mistake, however, of assuming that such a small amount of water in a shallow ditch will suffice, if the rest of the soil is rather dry. Under such conditions the water will soon be gone and there will be hard dry soil around the tender sprouting seed. This wetting of the seed store in the city. White seeded Kentucky Wonder beans for the poles will not rust or mildew quite as badly as the brown seeded and will yield fully as well. French carrot is small but better flavored. French parsnip is best. Nancy Hall is our best sweet potato. Jersey yellow is good. Georgia yam is too coarse and not so sweet. Don't bother with stock beets. Detroit Blood beet is good. Golden summer crookneck is a better squash than white bush scallop. English cram marrow is a delicious all-around summer and winter squash. Plant your casabas now. Improved Hybrid and Honey Dew are good and so are others. Big Boston or Iceberg lettuce may be planted. It is not too late to set New York egg plant or Chinese grant pepper. Plant lemon cucumber for table use and Klondyke or Davis for pickles. Plant Oregon Evergreen sweet corn for general crop and Black Mexican for its flavor.

**A Common Mistake** of gardeners is in making it unnaturally easy for plants to get their food solution. This is illustrated by one of the childish "get-results-quick" recommendations, which was widely advocated in war-garden literature. We were advised to fill five gallon oil cans with manure (poultry manure preferred), break holes in the can near the bottom with a big spike or corner of the ax, set the can ten inches or so into the soil and plant seeds around it, then water through the can, letting the manure water soak out of the holes at the bottom of the can. Those who followed it fooled the plants, but fooled themselves more. The plants congregated their root systems all around the bottom of the can. As they grew, requiring more and more food, their artificial supply grew less and less, and then the roots were not in position to supply their needs.

**Plant Roselle Now.** Roselle makes

[illegible] shortly before planting is especially advisable during hot weather in order to assure quick germination and good stand, but it is advisable to wait a few hours after running the water before planting.

**Don't Form a Crust** over the top of the struggling seed by sprinkling it after planting before it comes up. Any [illegible] of seed planted in the open ground should be well up, showing plainly in rows or hills, before any irrigation is [illegible] Many seeds should grow for a week or more before needing irrigation. This is feasible, however, only [illegible] the soil has been filled with moisture before planting was done. If [illegible] must be resorted to after [illegible] are up, use a sprinkler which [illegible] a fine spray and leave it set long enough in each place to get a good penetration. Of course it is not advisable to put so much water in the [illegible] watering after the plants [illegible], but they must be watered [illegible] to keep up a steady moisture [illegible]

**[illegible] Are the Best Varieties?** They [illegible] found at the grocery [illegible] selection. We will men[illegible] some of the best ones for [illegible] or go to the most excellent jelly. It is rather tart, but is fine to go with meats, etc. Many like it better than plum jelly. It has outlasted the novelty stage and is a real food plant. It looks much like cotton when growing but is a little larger. Plant it in rows or hills three to four feet apart each way. Don't delay, as it should go into the soil early in May. With fruit likely to be scarce and high in price again this fall a nice crop of roselle will help!

**You Like Turnips?** Then you will like kohl rabi. It will grow any time of the year, hot or cool, but must have a rapid growth in good, rich, moist soil in order to be at its best. Cook diced and seasoned like green peas, or serve like turnips or potatoes. The flavor is something like cabbage, turnip, peas and cauliflower, blended. They are best when quite young.

**Have a Supply of Greens** all the year. Plant Swiss chard in the summer and spinach for winter. Grow a small amount of Chinese mustard to cook with the chard. Chard is rather flat and without flavor, but the mustard seasons it just right. Plant the chard but once a year. Plant the mustard a little at a time once every two months.

# Look for Paint

## That's Cracked or Checked

DON'T let *your protective coat of paint* crack and come off. Even tiny breaks will let weather in, and that means decay.

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The best paint, if properly applied, protects the house from five to ten years longer.

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(California)

# Organizing in Oregon

By O. H. Barnhill

**Contributing Editor for the Pacific Northwest**

AT LAST we have found the key which unlocks the door to profitable marketing of farm products, and we don't propose to let that key grow rusty for lack of use—at least not here in Oregon. We are learning to stick together—to co-operate.

O. H. Barnhill

To California belongs the credit for pioneering in this movement. The raisin growers around Fresno were among the first to turn the trick, and now we propose to follow the lead of the many California associations. But we must profit by their experience.

The cornerstone of successful co-operating is the marketing agreement. The fatal weakness of organizations which have failed has been in permitting members to do as they pleased about selling their crops through the association. Outside dealers have tempted members to break their co-operative agreement and sell to them, with the inevitable result of breaking up the association—which, of course, was the dealers' aim.

Right there is where we made our big mistake. Of course it was only natural, because farmers as a class are an independent people. Living alone makes us that way. We have been forced by circumstances to depend upon our own individual efforts and therefore have fallen into the habit of doing business that way.

Town folks are different. They live in compact, highly organized communities, where every human activity is managed by a specialist. Farmers long have seen the advantage of this method. The principle is sound. Any one knows that an organized army with able officers can worst an unorganized mob. We long ago grew tired of furnishing the mob stuff and have been entirely willing to try co-operation.

### WHY SOME HAVE FAILED

But many of our attempts at organization have failed, largely because we wouldn't stick together. When it came to the crucial test of turning our entire crop over to the tender mercies of an association manager we balked. The theory was all right and we were willing that the other fellow should go the limit in putting it into practice; but, personally, we wished to reserve the right to withdraw whenever it seemed to our interest to do so.

"The one outstanding problem we have to contend with," says J. R. Brown, manager of the farmers' co-operative creamery at Payette, Idaho, in a recent letter to the writer, "is to keep our members together. Some of them have been convinced that a competitive creamery, which has offered them some slight temporary advantage, can give them a better deal than we can, which, of course, is not true. The result is that we are losing part of the raw material needed to operate our plant to advantage."

A similar story is told by the managers of many other co-operative concerns that have failed. Accordingly, we are drawing up marketing agreements which force us to stick together. These are legal contracts which hold water in courts of law.

## How a Co-operative Marketing Association Is Launched

HERE is the plan: The association itself is a non-profit organization without capital stock. The membership fee of $10 is used to defray organization expenses. No one can become a member who is not a bona fide producer of the commodity handled by the association and no member has more than one vote, which he must cast always in person. These are all important points.

But where does the money come from? By selling preferred stock in a subsidiary concern, which is managed by the association directors. (The common stock is owned by the members, in order to give them legal control of the subsidiary concern.)

The preferred stock draws a guaranteed dividend of 7 or 8 per cent and is paid off in annual installments of sufficient size to retire all this preferred stock within the life of the marketing agreement—usually five or six years.

The money obtained by selling preferred stock is used to buy warehouses, equipment, factories, packing plants and other needed property for the association. This money is paid back out of the proceeds received from the sale of the commodity handled by the co-operative concern.

### WORKS ITSELF OUT

It will thus be seen that at the end of the marketing agreement the capital stock is fully paid up and the association out of debt. Since the preferred stock has all been retired, the property of the organization is all represented by the common stock, which is owned by members, and has thus been proportionately increased in value. This puts the association on such a solid foundation at the end of the marketing agreement that most of the members are entirely willing to sign a new marketing contract.

There you have the whole plan. The proof of its soundness lies in the uniform success which has attended every trial it has been given. California farmers last year successfully sold co-operatively $225,000,000 worth of products.

## State Fruit Association Now Thriving

SPACE will permit of only brief mention of some of the things which we are doing here in Oregon. The writer helped organize the new State fruit association, which now has 1,600 members, owning 28,000 acres of orchards. The first year's business will total nearly $3,000,000. This does not include the biggest fruit district in the state, Hood River, where there is such an excellent local association that for the present it was decided to devote our energies to solving the market problems of the Willamette, Umpqua and Rogue River Valley growers.

### OLD CONDITIONS UNBEARABLE

In the last-named district a most lamentable condition existed. Private dealers enjoyed the richest kind of picking from unprotected producers. In Medford alone a dozen dealers waxed fat on profits made in handling Rogue River fruit. Upon some shipments the returns to growers were merely nominal—or even in red ink.

Speculation ran rife. Prunes were sold when the trees were in bloom last year for as low as 9 cents, and then resold several times, the price being boosted as high as 20 cents by dealers—after the crop was in their possession. All kinds of co-operative marketing organizations had been [illegible]

[illegible] out—with few exceptions—the result had been failure.

The new state association was capitalized at $1,000,000, half preferred and half common stock. At the end of five years the former will all be retired, doubling the value of the latter. Each grower was required to take one $10 share of common stock for every acre of bearing fruit trees in his orchard. This could be paid for in cash or taken out of the proceeds of the first two crops of fruit.

Banks advanced money on these stock subscriptions and private investors bought enough preferred stock to furnish the necessary working capital. Owners of warehouses, driers and packing plants generally took stock in exchange for property, while the growers themselves took much of the preferred stock.

FINANCIAL AID RENDERED

A majority of the best fruit driers and packing plants in the State now are owned by the association. Twenty-four banks assisted in financing the organization, advancing money on warehouse receipts, so that growers were not forced to wait several months to realize on their crop. A half million dollars was advanced to handle the prune crop alone.

For the first time a standardized grade and pack was adopted for the entire State and fruit advertised and sent out as an Oregon product. The coming season "Mistland" fruit is to be advertised in a nation-wide campaign.

Some of the best prices ever received for Oregon fruit were realized the past season. Bosc pears in New York and Winter Nelis in London brought upwards of $7 per bushel box. Seventeen cents per pound was received for strawberries, 13 cents for loganberries, 20 cents for black-cap raspberries and 13 cents for cherries—about 3 cents more than the growers ever before received.

## What Oregon Poultrymen Have Accomplished

READERS of Orchard and Farm will recall the story of U. L. Upson's "Ill-a-Lee" poultry farm, which appeared in these columns not long ago. During the war Mr. Upson was employed by the Government to lecture on poultrying, in order to stimulate production. His experience in this work convinced him that the best way to accomplish the desired end was to quit talking and solve the market problem.

All sorts of troubles and difficulties were encountered, but one by one they were overcome. For example, last spring the price of eggs dropped to 17 cents, with prospects of further declines. In order to place in cold storage the immense quantities of eggs which were arriving and hold them until autumn, it was necessary to obtain considerable capital to make advance payments to growers.

ATTITUDE OF BANKS

"We went to the leading Portland banks," said Walter Kanne, one of the directors of the Pacific Poultry Producers' Association, "and explained to them the situation, showing how profitable it would be to them to handle our account in the future. We were given a curt refusal and told that no new accounts were desired.

"Finally we found a bank which advanced the necessary funds. Several of us transferred our accounts to this bank, considerably to the chagrin of the institutions which had refused us credit. We are now handling 300 cases of eggs per day, worth $3,000. This means a business of a million and a half dollars or more per year, an amount which any city bank would be glad to handle.

"Shippers were advanced 30 cents a dozen for eggs placed in storage. Last January they were sold for enough to pay all expenses of holding the eggs and a good profit to growers of 47 cents a dozen which would have been obtained in the market.

[illegible] association was

(Continued on Page 45)

FAMOUS BASTANCHURY RANCH IRRIGATED WITH 12 L & B PUMPS

Recognized as one of the finest ranch and citrus properties in the world, the Bastanchury Ranch, near Fullerton, California, has for years been irrigated with Layne & Bowler water. In that immediate vicinity 500 other Layne & Bowler Pumps are giving dependable service. And over in the Hemet and Perris districts several hundred more L & B's are serving. Then up in the northern part of the State 94 L & B's are operating on the noted Capay Rancho and on scores of other extensive ranch holdings from five to fifty L & B's are producing cheap water. More than 7000 irrigators depend upon Layne & Bowler Pumps.

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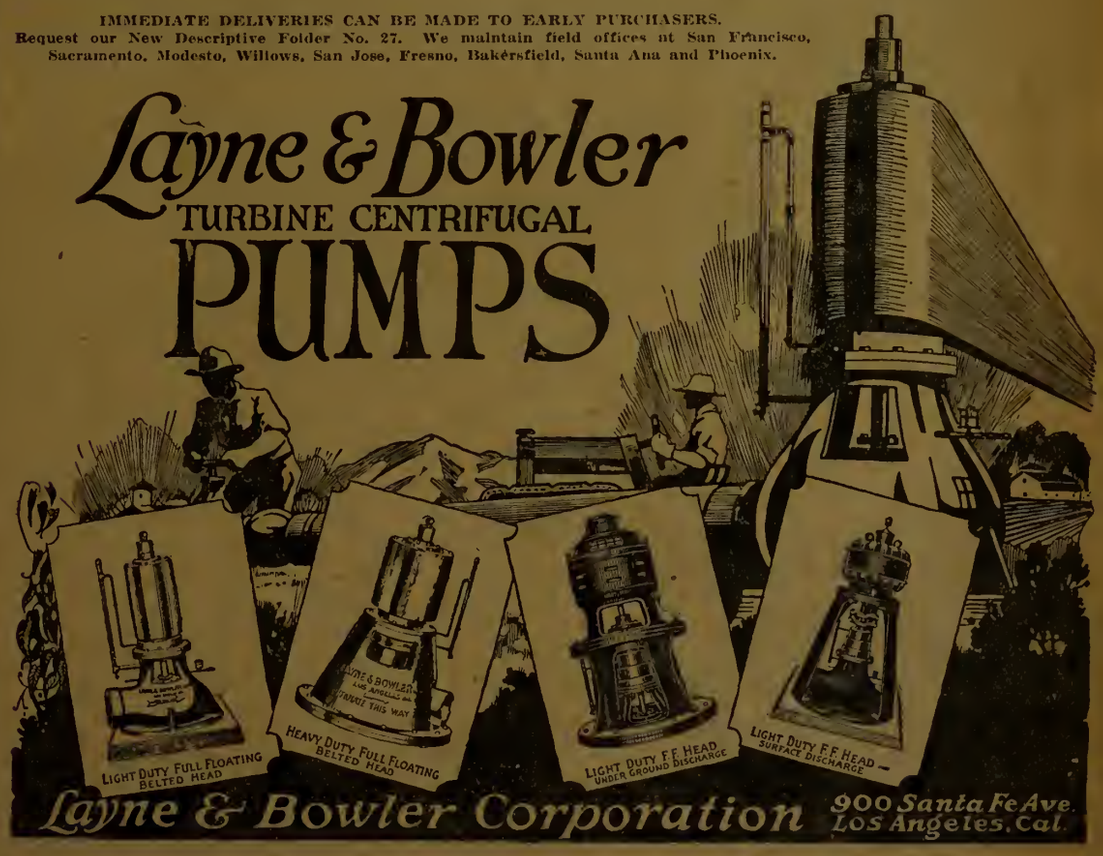

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# Seasonable Citrus Topics

By Robert W. Hodgson

### *Announcement to Citrus Growers*

***IN LINE with ORCHARD and FARM'S policy of complete service, we have arranged for regular publication of brief, helpful paragraphs on citrus culture. These will be prepared especially for ORCHARD and FARM by Robert W. Hodgson, widely known authority and farm adviser of Los Angeles County. Mr. Hodgson also will reply to the questions of readers which are mailed to ORCHARD and FARM with stamped, self-addressed envelope.—Editor.***

### Early Spring Vitrification

CITRUS growers are coming more and more to appreciate the importance of an adequate supply of available nitrogen during the bloom period as a means of insuring a satisfactory set of fruit and a resultant heavy crop.

Many growers of long experience testify to the fact that almost invariably the use of quickly available fertilizers in early spring results in better than average crops. And this fact is all the more noticeable in years when the "setting" period brings with it unusually unfavorable weather conditions in the shape of "Santa Ana northers" or heat waves.

But there is an important way in which growers may aid nature in furnishing an ample supply of available nitrates and which few citrus growers recognize. This is by providing soil conditions optimum of early and rapid nitrification. The process of nitrification goes on but slowly when the soil is cold. Warm soils during the bloom period mean more nitrogen available to the trees during this critical period.

Ways in which warm soils may be provided include early spring plowing, shallow plowing and packing. Late or deep spring plowing means cold soils. Where cover crops have been left late, discing four ways with the teeth set straight and delaying plowing or heavy cultivation until later in the season will accomplish more than plowing at this time.

### Citrus Blast Camouflage

REPORT has recently been received from Dr. H. S. Fawcett of the Citrus Experiment Station at Riverside that he has conclusively proved citrus blast (which has become more active in Northern California citrus districts than ever before) to be due to the same organism causing black pit of the lemon—bacterium citriputeale.

The reason for its failure to show up in aggravated form in Southern California is atributed to the lack of the proper combination of favorable climatic conditions; viz., prolonged rains and relatively low temperatures.

Bordeaux mixture applied immediately after harvesting the crop and, where possible, again later in the season, is stated to be the best control measure yet developed.

### Natural Pest Enemies

REVIEWING recently the investigations of the Pest Control Division of the State Department of Agriculture, Harry S. Smith, chief, reported interesting discoveries. Mr. Smith stated that the new aphycus parasite found in South Africa bids fair to effect complete control of the black scale in all the coast districts, where it lives throughout the year on the off-hatch generations.

In the interior districts, however, as with the mealybug parasite, he believes it will be necessary to rear the parasites in large numbers for liberation at the proper period, insufficient off-hatches occurring to provide year 'round food.

Control of the Argentine ant also will be necessary in order to permit the parasite to feed on the scale without interference, he points out.

### Fumigation and Spraying

PEST control problems loom large this year. Citrus growers by no means are satisfied with results attending the spraying and fumigation of the past season. In some quarters caustic criticism of the new method of fumigation is heard and all agree that there is much room for improvement before a perfectly satisfactory method is devised.

Reporting on the control of citricola scale and thrips at Exeter, J. A. Prizer superintendent of the citrus holdings of the Merryman Fruit Company, issued the following statement:

"Where scale infestation is severe fumigation alone will not give satisfactory control, nor has spraying been found to do the work." In the case of light infestation, however, Mr. Prizer recommended annual spraying as cheaper than fumigation and sufficiently satisfactory.

SPRAY RECOMMENDED

The spray recommended by this authority consists of 10 gallons of lime sulphur, 2½ gallons miscible oil and 1½ pounds glue to each tank of 200 gallons of water. This should be applied, if possible, before the advent of the rainy season or in December. For scale and thrips he also recommended a summer spray of weaker strength, but cautioned against applying this when atmospheric temperature exceeded 9[illegible] degrees.

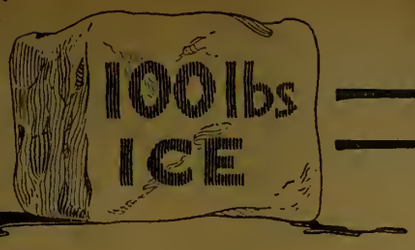
Cost accounts showed a spraying program of this sort, while involving expenditures of from 40 to 50 cents per tree, to have resulted in a profit of from $15 to $20 an acre. Mr. Prizer had no data to support the theory that spraying for control of thrips prevented or affected materially the June drop. For thrips control alone he suggested spraying in April. Mr. Prizer added that the best results had been secured with "angle nozzles."

### Citrus Topworking

CONSENSUS of opinion among citrus leaders seems to be that lemon growers in good lemon districts should not be hasty in working over their trees. But topworking to more productive strains and elimination of unprofitable trees, together with cutting down of production costs at all points are emphasized as necessary if the lemon orchard is to survive. It is generally agreed that topworked trees, if properly cared for, are as satisfactory in yield and other respects as ordinary trees of equal age.

### Red Spider Studies

CITRUS growers are much interested in the announcement that A. [illegible] Borden of the Bureau of Entomology, United States Department of Agriculture, has been at work for some time on citrus red spider investigations. Growers are finding it necessary to spray three and four times in certain districts in order to make any headway against this pest. We are informed that Mr. Borden already has secured valuable data on methods of winter control. If the department succeeds in developing a cheap and efficient method of control, the investigators will merit and receive the sincere thanks of every citrus grower in Southern California.

Ordinary refrigerator + 

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The Iceless Vaporator stands 5 feet high. Diameter, 28 inches.

Food Chamber is 43 inches high. Diameter of Food Chamber is 24 inches (so you see what a goodly quantity of food stuff finds place in the Iceless Vaporator).

The dimensions of the door accommodate milk pans of the largest size.

The constant circulation of air is achieved by such cautious screening of openings that the Iceless Vaporator is dirt-proof and proof against ants, insects, anything that either creeps, crawls or flies.

All these wise provisions are set forth in the booklet, "Refrigeration Without Ice" which we shall hasten to mail you if you will send us your address.

$90.00

Study the illustration above and think what it means to have all the convenience of a refrigerator without the necessity or cost of ice.

Just a bucket of water. That's all the Iceless Vaporator requires. Fill the tank with water and you have a cool place for butter, milk, vegetables, etc. No matter how hot it gets, the Iceless Vaporator is always cool.

The Iceless Vaporator requires no attention. Simply place it in your back yard or on the porch. Your "ice troubles" are ended.

The water from the tank on top saturates the outer wall and is evaporated. This continual evaporation cools the outer wall and the food chamber within.

The inside of the Iceless Vaporator is cool, dry and is easily cleaned. Its sanitary principles meet the approval of the most critical housewives.

The Iceless Vaporator will be the family friend for all time. Its first cost is the only expense.

Ask your dealer about the Iceless Vaporator or write us direct.

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# HELPFUL HINTS for THE HOUSEWIFE

Edited by Isabel Sinclair

*The Home is the Hub of the Universe*

### THE SANDPILE

SINCE our Johnny got his sandpile—
Gracious me!
Our house is like the beach beside the sea!
We have sand upon the carpets,
And sand about the chairs;
Sand between the blankets,
And up and down the stairs—
But it keeps him interested and reduces
Mother's cares—
Don't you see?

HIS shoes and socks are filled with it
At night!
His hair and ears and neck are just a sight!
He mixes it with water
And makes it into pies;
Puts it in his pockets,
And gets it in his eyes—
But if it keeps him busy we can praise it to the skies—
Am I right?

Amy Elizabeth Harper.

(Written for ORCHARD and FARM. Copyright.)

DEAR FRIENDS: With all the modern labor and time-saving improvements which are the farm woman's privilege to enjoy, I am sure she would be interested in work garments made for comfort, coolness and attractiveness.

It is the natural desire of every woman to be attractive in her home. Still, many contend that they have not the time to be "dressed up," when really it is just as easy to don an attractive garment as the homely, gloomy one, the only mission of which is to be useful. Now, they can be just as useful, but have the added advantage of being pretty Surely, this is a step in the right direction.

I have in mind a slip-over, apron type of house dress, with the loose, elbow-length kimono sleeves and the round or square neck, finished with either a frill or bias band of contrasting material. A loose belt or sash confines the dress to the figure, and there is no woman who will not appreciate the big pocket on either side. The old style house dress, with its tight waistband and cuffs, and necessary buttons and buttonholes, is a handicap to the energetic housewife. Many attractive variations may be conceived to alter the style of trimming and to introduce a touch of bright color.

There are a world of fresh-looking, lovely materials suitable for this kind of dress; the English prints, with their quaint little designs; the calicoes, lovely silky sateens, and, of course, the ginghams in plaids, checks and plain colors that wear so well, and the percales and chambrays that are less expensive and warranted to wear indefinitely. (Just as an extra tip: It is surprising how easy these garments are to launder, and being one flat piece they can be ironed in a "jiffy.")

What a joy it is to "drop in" at a farm house and be greeted at the door by an attractive pink-and-white-check-clad figure. The woman who strives to make the environment of her home as pleasing as she can is "carrying on" her part of successful home-making.

Sincerely,

Isabel Sinclair

TO prevent food from sticking to new tinware, rub with melted paraffin and place in a hot oven for a few minutes. Remove and wipe thoroughly with a dry cloth. If food persists in sticking repeat the treatment.—G. Fitzgerald, Los Angeles. (H)

### Boiled Ham

SOAK the ham over night; wash and scrape well, then place in cold water and cook two hours. Allow it to stand in the broth until cold, then put into roasting pan and bake in a moderate oven, basting often with melted butter. When nearly done spread a paste made of flour moistened with the broth over the top and brown.—M. Merkle, San Francisco. (H)

Enjoys ORCHARD and FARM—"We certainly enjoy your magazine, and find it both interesting and helpful in many ways."—Mrs. Christner, Fullerton, Calif.

## Hurrah! No More Blue Mondays

### Martha May Explains How Electricity Has Solved Wash Day Problems

I SIMPLY must tell you about the perfectly wonderful washing machine we have acquired. Now that our electric lighting plant has been installed, the first thing father did was to surprise mother and me by sending home the loveliest washing machine you ever dreamed of.

Mother and I, of course, had planned to buy one with our egg money, but father, bless his heart, did not even give us the opportunity.

From now on, wash day at our house will take on a roseate shade, and the proverbial "blue Monday" will become past history. I am sure that phrase would vanish from the vocabulary of every woman if she could have such equipment with which to do the family washing.

Father said it was a difficult task to decide which make of machine to buy; they showed him so many different kinds, and all had such good features. There was the vacuum type, which washes the clothes by means of suction and air pressure, embodying the same principles as the old style hand vacuum.

Then there was the disc type, which creates a circulation of water, combining the vacuum and rubbing principles to cleanse the clothes.

Still another style was a machine which washes by means of a large cylinder into which the clothes are placed. This cylinder, which is of hard maple wood and perforated, revolves, reversing after each complete revolution. The movement thus made raises and lowers the clothes, washing them back and forth through the suds just as if they were washed by hand, with the rubbing eliminated.

However, after taking up over two hours of the salesman's time, and finding himself at the same point of indecision as at first, father decided to flip a coin, and accepted its unbiased selection, which, needless to say, was most satisfactory to us.

Some time ago we had two stationary wash-tubs installed on the back porch, with the necessary drains, supply pipes and fittings. But we still had to wash by hand, although the days of carrying gallons of water from the well were over. However, now that we have our washing machine, the stationary tubs are an added convenience, for we wheel the machine in front of one of the tubs when the clothes are ready for the rinse water and wring from the washer into the first tub, then into the second tub, and finally into the basket, by means of the electric wringer, which is attached to the washer, and which swings completely around.

How much fun it is now to press a button and let the little wringer do the work, merely guiding the clothes up to it! The old-style hand wringer was much the cause of Monday assuming a rich indigo shade, at least in my opinion, and I have always dreaded that part of the operation of washing, for it fell to my share.

The salesman told my father that the sheerest garment could be washed safely, and also that a heavy blanket or comfort could be washed with equal ease and satisfaction. To test the machine's qualities, mother and I finished our first washing by putting a large blanket into the washer, and sure enough it came out cleaner than it could be washed by hand.

But the best thing of all was that mother and I are spared that hard work, and when the washing is entirely finished and on the line in the course of two hours, we do not feel the usual washday fatigue. While the clothes were being washed we accomplished a great deal about the house, and had much of the work done that otherwise would have been put off until the next day.

But I almost forgot to mention a very important item—and that is it costs only about two cents an hour to do the washing! And, if desirable, one can buy the machine by paying down a certain percentage of its cost, and the balance in small monthly payments.

Of course, now that we have the washer, some of these days we shall buy an electric ironing machine. With one of the newer ones, a tablecloth can be ironed in three minutes And sheets and all kinds of flat garments, including shirts and plain dresses, can be turned out in a relatively short time.

However, at present we have an electric iron, and I really don't mind ironing at all, although it used to be a perfect nightmare when it was necessary to have a hot fire in the range to heat the irons, which heated up the kitchen as well, until the mercury in the thermometer nearly climbed out of its glass house in its skyward flight, and one's disposition was entirely wilted.

Those days are over, thank goodness! And laundering is really a pleasure since father surprised us with our wonderful washing machine Father said last night he surmises mother and I will have an electrical reason for the disappearance of our egg money for the next ten years to come, so enthusiastic have we become over "doing things electrically." We did not say anything, however, for the other day we found a great array of circulars on milking machines in his desk, and somehow we feel pretty sure that the enthusiasm has become contagious.

Yours for rainbow-hued washdays.

Martha May

### Cake Making Hint

WHEN making loaf cake, mix the shortening with the dry flour as in making biscuits. When baked it will be more of the texture of pound cake.—G. Fitzgerald, Los Angeles. (H)

### New Uses for Vinegar

TOUGH meat or fowl may be improved greatly by adding a tablespoonful of vinegar to the water while boiling. If corn on the cob turns yellow when boiling, add a few drops of vinegar to the water and it will become pure white. When poaching eggs, put a few drops of vinegar into the water thus preventing the whites and yolks from separating. Table salt and vinegar, mixed to form a paste, make an excellent polish for brass or copper kettles.—Mrs. C. C. Richmond, Riverside, Cal. (H)

### To "Break" Hard Water

A TEASPOONFUL or two of baking soda added to the water in which dishes and glassware are washed will not only soften it, but also impart a glossiness to the dishes that nothing else will give. It is economical and is not injurious to the hands. Soda also gives splendid rseults if added to the water when washing windows.—Mrs. G. A. Enos, Salinas, Cal. (H)

### Garden Suggestion

INSTEAD of throwing away soap flake boxes, or any good-sized cardboard box, cut the bottoms out, fold them flat and save them.

When transplanting your plants place a box over each plant, pushing four or five stakes into the ground inside of the box, making it rigid.

Pile earth firmly about one-third of the way up, on the outside, thus eliminating the danger of the strongest wind blowing the boxes away. It is best to leave the boxes in place until the plants grow above them, as by the time they will be hardy enough to stand unprotected.—Mrs. G A [illegible] Cal. (H)

# PRETTY COSTUMES

## Selected by Isabel Sinclair.

*These costumes are simple and can be made readily by the home dressmaker from the instructions provided. Send 15 cents in silver or stamps for each pattern desired. Address Pattern Department, Orchard and Farm, 1111 South Broadway, Los Angeles. Give full name and address.*

**3579-3570—Lady's Costume**

Waist 3579 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Skirt 3570 cut in 6 sizes: 24, 26, 28, 30, 32 and 34 inches waist measure, and requires 3 yards of 64-inch material for a 28-inch size for the skirt and 3 yards of 36-inch material for the waist. The width of skirt at the foot is 3½ yards. Two separate patterns, 16 cents for each pattern.

**3587—Child's Romper**

Cut in 4 sizes 2, 3, 4 and 5 years. A 4-year size will require 2¾ yards of 36-inch material. Price 15 cents.

**3566—Child's Dress**

Cut in 4 sizes: 1, 2, 4 and 5 years. A 2-year size will require 2¼ yards of 36-inch material. Price 16 cents.

**3558—Lady's Dress**

Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38-inch size will require 4¾ yards of 40-inch material. The width of skirt at foot is 2 yards. Price 16 cents.

**3283—Misses' Dress**

Cut in 3 sizes 16, 18 and 20 years. An 18-year size will require 5¾ yards of 36-inch material. The width of the skirt at foot is about 1½ yards. Price 15 cents.

**3390—Girl's Dress**

Cut in 4 sizes 6, 8, 10 and 12 years. A 10-year size will require 4¾ yards of 36-inch material. Price 15 cents.

**"Easy to Make" Apron**

Cut in small, medium and large and one size. A medium size will require [illegible] yards of material. Price 16 cents.

**3573—Lady's House Dress**

Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38-inch size will require 5⅞ yards of 36-inch material. The width of skirt at the foot is about 2¼ yards. Price 15 cents.

**3564—Girl's Dress**

Cut in 4 sizes: 6, 8, 10 and 12 years. A 10-year size will require 4¼ yards of 27-inch material. Price 15 cents.

**CATALOGUE NOTICE**

Send 16 cents in silver or stamps for our up-to-date spring and summer 1921 catalogue, containing over 500 designs of ladies', misses' and children's patterns, a concise and comprehensive article on dressmaking; also "Some Points for the Needle," illustrating 30 of the various simple stitches. All valuable hints to the home dressmaker.

**Use Coupon in Ordering Patterns**

Herewith find.....cents, for which send me the following patterns:

Pattern No..... Size.....

Pattern No..... Size.....

Pattern No..... Size.....

Be sure to give number and size. Send orders for patterns to ORCHARD and FARM, 1111 South Broadway, Los Angeles. Be sure to sign your full name and address below.

WOMEN—WORK IN COMFORT

SEND FOR THIS

FINCK COMBINATION SUIT

One of the famous Finck line—just the garment you need for everyday wear about the farm. It affords you safety, comfort, conveniences and efficiency so necessary to make your work a pleasure. Designed by women who know women's needs. Made well of the toughest of fabrics and offered at a very low price for a Finck quality garment. You will find this combination suit a wonderfully economical and satisfactory purchase. It may be had in the style shown in the illustration, in either blue or khaki, with long or short sleeves. Each garment carries the Finck guaranty of absolute satisfaction.

ORDER TODAY—Enjoy the service of this combination suit just as soon as you can get it. Send bust measurements, height and color desired, along with the $2.95 purchase price, and the garment will be mailed you, postpaid, at once.

*Only* $2.95 *Postpaid*

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FACTORY TO YOU

Owing to the success of our sale during the past three weeks, we are giving you this opportunity to paint your home, garages, barns, outhouses, tractors and farm implements at a saving of

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| House Paints (22 shades) | $2.45 gallon |
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| White or Ivory Enamel | 2.95 gallon |
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| Automobile Enamel (all colors) | 1.20 quart |
| Barn, Bridge and Roof Paint (Red and Green) | 2.10 gallon |
| Green Roof and House Stain, in 5-gallon lots | .95 gallon |
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# Western Surface Irrigation Pipe

Made in one piece of heavily galvanized steel with riveted seam, insuring durability.

Also manufactures riveted steel pipe well casing; corrugated galvanized culverts and tanks.

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## Golden Gate Weed Cutter

Kills the weeds and cultivates the soil at the same time. Cuts them off clean, under the surface, close to the roots. Besides, it

BREAKS THE GROUND UP THOROUGHLY.

One man writes that he saved $200 in a season because he did not have to plow after using the Cutter for weeds. Cuts 7 feet or less and adjustable to any depth. Constructed of steel throughout. Weighs only 230 lbs.

WRITE FOR CIRCULAR which describes the Golden Gate Weed Cutter in detail.

C. G. SIGURD, Manufacturer

Capitol Ave. and McKee Road.—San Jose, Calif.


# YOUR GARDEN of FLOWERS

*by Helen Temple*

The bud is on the bough again,
The leaf is on the tree.
—Charles Jefferys.

## How to Grow Ferns Successfully

IT is said that more than 4000 species of ferns are grown in all parts of the world, but not more than four-fifths of one per cent of them are cultivated in the United States.

Helen Temple

Of the 160 native species of our country, a large percentage are dormant during the winter and do not make as desirable house plants as those of the tropics.

The California native ferns usually grow in very poor soil and will not live after being transplanted unless located in a soil containing a great deal of humus. If, however, the natives are planted in leafmould with sandy loam, provided with good drainage and protected from extreme temperature and wind, they will live for years in "captivity."

They do not make good house plants after being taken from their natural environment, unless kept free from pests and disease, as they are more susceptible than many of the ordinary house ferns.

The latter often grow very large and beautiful in the house, but if transplanted out of doors quite often die. However, if planted in a warm, sheltered nook, protected from extreme weather, they will grow larger and stronger than indoors.

### FERNS FOR THE HOUSE

Some of the species which grow best under the adverse conditions of the house are: The Sword fern, Maidenhair, Holly fern, Boston ferns (many different forms), Polystichum setosum, Bird's Nest fern, Bracken (Native Brakes), native Sword ferns, native Coffee ferns, Feather fern and Lace fern. This list provides a large variety for the fern lover to choose from. There are several other species, which usually may be procured from a florist.

The soil should be very friable and rich. Oak leaf mould mixed with sand and loam in equal portions is ideal. However, this is not always available, and as a substitute very old, rotted cow manure may be used with the sand and loam very satisfactorily. Coarse gravel and bits of broken flower pots, or small rock, should be used generously in the bottom of pots or fern beds, to provide drainage. Ferns are more particular than any of the plant family about their "feet." They soon die if proper drainage is not provided, while at the same time the roots should never become dry.

### VARIETIES TO PLANT

The locality should govern the varieties of ferns to be planted. This is especially true of the outdoor plantings. In the interior and northern part of California do not try to grow any but the native outdoor varieties, which should be planted as nearly as possible in the same soil and situation. They will die down in winter, but revive in the spring.

It will be a waste of time and effort to attempt to grow ferns outdoors in the hot, dry interior regions. However, most varieties will grow satisfactorily in the house or conservatory if the following advice is heeded: During the hot weather, keep the ferns away from a bright window, as the fronds often are burned through the window glass. Keep them very moist and spray the foliage often.

In the semi-tropical and Coast regions outdoor ferneries are very successful if the situation and soil are chosen with care. Goldfish pools, with a border of native ferns are one of the prettiest additions to the home garden. Follow mother nature's plans in your outdoor ferneries: Odd corners of the garden, an oak tree, or a protected spot against the house, furnish an ideal location for a fern bed or rockery.

The outdoor planting season begins in November and lasts until new growth begins, usually during the latter part of February. The repotting of house or conservatory ferns may be done at any time of the year. When planting ferns outdoors, provide a mulch of old leaves or straw, placing this carefully about each plant.

Propagation of ferns, uses of varieties, building fern rockeries, transplanting, repotting and fern enemies will be discussed next month.

## May Planting

After May 15 all danger of frost is passed in the interior valleys and all planting and transplanting may safely be undertaken. One may sow seeds of carnations, asters, marigolds, phlox, antirrhinum, balsam, centaurea, zinnias, dianthus, snap-dragons, nasturtiums, petunias, candytuft, daisies, forget-me-nots, chrysanthemums, poppies, gilliardia, cosmos, coreopsis, salpiglossis and scabiosa.

It is not too late for amaryllis, dahlias, gladiolus, cannas or tube-roses in most sections. However, if the weather is quite warm, it is not advisable to plant bulbs this late.

## Questions and Answers

WHAT shall I use to spray roses, infested with small green bugs, which eat the young buds?
MRS. W. T. B., Arcadia, Cal.

—If a strong force of water fails to eradicate them, spray with soap solution made by dissolving a bar of yellow laundry soap in a quart of hot water. Add two gallons of water, mix and spray thoroughly. The water bugs are one of the most common rose enemies and multiply very rapidly. Immediate action is advised.

I would like a permanent hedge along our driveway. Would privet need very much trimming? About how much would a hedge of that kind cost.
MRS. B. M. T., Bakersfield.

Privet makes a good permanent hedge. It needs trimming about once a month during the summer, but grows slowly during the winter, so that trimming is unnecessary. The plants will cost about one dollar a dozen. They should be set nine to twelve inches apart.

Often the question is asked, "What should I do for my roses? They do not grow well?"

My advice is to dig up the soil about the roots, spading under fertilizer. Usually when a rosebush fails in California, without apparent reason, the plant food in the soil is exhausted. However, in the case of an old bush, it is best to replace with new stock, first rejuvenating the soil.

MY FERN has little black, soft bugs on the new growth. What should I do with it? (2) How shall I treat a new fern from a glass house? (3) Will you please give me a little information how to handle ferns so they will do well?—Mrs. S. M., Santa Ana, Cal.

(1) Wash the fern with a suds of Gold Dust, using enough to make a good lather. Brush fern with the suds using an old whisk broom, taking care not to break the fronds. Rinse in clean water in the same manner. Twice a week wash the fern with tobacco solution made according to directions on bottle of concentrated tobacco products, such as "Black Leaf 40," obtainable at the drug or seed store. Repeat two or three weeks in succession.

(2) Keep the new fern in front of a closed, sunny window. Do not expose to draughts or winds.

(3) Oak leaf mold is the best soil for ferns. Keep them moist. Provide good drainage. When planted out of doors protect from winds and hot sun. Take them out doors once a week and water gently with water.

## Boys and Girls

"Youth! How buoyant are thy hopes! That turn like marigolds toward the sunny smile!" —JEAN INGELOW.

THE Contest Editor has announced a new and entirely different contest for ORCHARD and FARM boys and girls. How many like to write stories? Well, that is what he wants you to do.

"Rover" or "Tabby," or possibly the new pony father brought home as a surprise would prove interesting subjects to write a story about, don't you think? Or perhaps you would rather write about the things you do to help father and mother; how you have made money all of your very own; about your success in raising pigs, a calf or some crop. Possibly you could write a story about one of your little playmates who has done something that would prove interesting and helpful to other boys and girls.

In other words, the Contest Editor decided to let the boys and girls choose their own subject for the story, but he asks that it be a true story and contain not more than 200 words.

But we have waited until the very last to tell you about the best thing of all—the list of prizes. However, here it is:

**First prize—Four thrift stamps.**
**Second prize—Three thrift stamps.**
**Third prize—Two thrift stamps.**

Those stories which do not win any one of the three prizes but are exceptionally good will be awarded honorable mention. All stories must be mailed by the 15th of May so that we may send the thrift stamps and announce the prizes in the June issue, and the three best stories will be printed on the Boys' and Girls' Page of ORCHARD and FARM.

Sign your full name and address, mailing your stories to the Contest Editor of ORCHARD and FARM, 1111 South Broadway, Los Angeles. Let us see how interesting a story you can write. I am sure the contest editor will receive a great many.

### To Earn Spending Money

MY brother Charles and I were very anxious to make some money and one day I read of a firm that would furnish me with rabbits to raise, after which they would buy them back. I built some hutches and sent for some stock. Last year I made over $100, and expect to do even better this year.

Charles bought a coping saw, a file, sandpaper and paints for a very small sum and made wooden animals, funny men and little houses which he sold for 25 cents each. My brother and I receive a great deal of pleasure out of the money we earn, not only from the things it buys but in doing the tasks.—Edward Schottland, Los Angeles, Cal.

### Game for Rainy Days

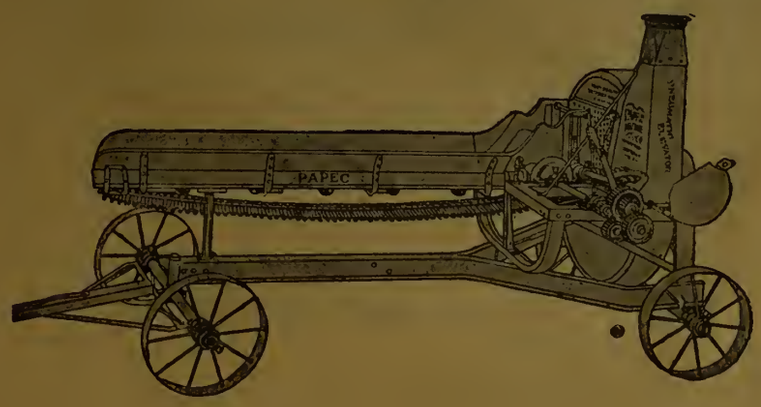
CUT five holes in the bottom of a shoe box, turn it upside down and number the holes 10, 25, 75, 105 and 50; then make two little blocks of wood. The idea of the game is to throw the block of wood into a hole when it comes your turn to play. A score is kept and the one totaling 1000 first is the winner. As many as eight can play at the game.—Fanny Rosenin, Seaside, Cal.

*Irrigating in China*

*Would you like to live in China, where irrigation is done with these [illegible] tread mills are operated [illegible] work for a few cents [illegible] you glad you be[illegible] old U. S. A.?*


# PAPEC

# Ensilage Cutter




*One-piece solid, semi-steel frame.*
*Elevates to the height of any silo at 600 r.p.m.*
*Cuts 3 to 30 tons per hour.*
*Perfect knife clearance.*
*Six fans on the cutting wheel instead of three or four.*
*Ensilage cannot clog in the pipe.*

**and 20% reduction in price.**

## *Have You a Dictionary?*

Find the word "Economy." It is defined as "frugality in expenditure." There is one sure way of practicing it—investigate thoroughly before you spend.

Before you buy an ensilage cutter, investigate—not only one but a number of cutters. Compare the mechanical advantages of each of them with the mechanical advantages of the Papec.

Do this, and we know you will realize the mechanical superiority of the Papec. Then just remember that the price of the Papec has been reduced 20%.

There has also been a reduction of 25% in the price of the Simplex Silo. Here are two opportunities to really save money. Let us send you details regarding both of them.

## Santa Fe Lumber Co.

**16 California Street San Francisco**

SCISSORS HERE

SANTA FE LUMBER CO., 16 California St., San Francisco.
Department A.

Gentlemen: Please send me details regarding the Papec Ensilage Cutter and Simplex Silo.

Name .....

Address .....

All sizes of machines and parts carried in stock. Send for free booklet and price list.

## Western Dairy Machine & Supply Company

Dept. A **Southern California Distributors**

**121 East Seventh Street** **Los Angeles, Calif.**

Two-wheel Reliance Trailer can be used for transporting live stock.

Light, 1200-lb. capacity 2-wheel Reliance Trailer for extra light work and for campers, etc.

Reliance 2-wheel trailer with special tilting bed. Specially adapted to moving tractors, but can be used for transporting other merchandise. Has side stake pockets and can be fitted with any type body, or easily interchangeable bodies of various types. Bed locks automatically when swung into level position for running.

## *For the Farmer With Small Loads To Haul*

Automobiles are not made to carry merchandise. Yet most farmers make a practice of transporting small lots of produce or material in their cars not realizing, perhaps, how this increases costly depreciation and tire-wear and how boxes, sacks, etc., scratch, mar and tear.

Why not utilize a small 2-wheel Reliance Trailer for minor hauling—towed behind your auto? It saves your car and saves much time. It enlarges your hauling capacity. These trailers pull easily without strain on your car and are balanced correctly for perfect tracking and smooth running.

Reliance Trailers are built throughout of wrought steel—light in weight but strong and durable. Workmanship and materials absolutely guaranteed. Built in capacities of 1200 lbs., 1-ton, 1½-ton and 2-ton.

Why not write for prices and the name of our nearest dealer?

Reliance Trailer & Truck Co. Inc.
1656 Howard St. San Francisco

**Reliance**
HEAVY DUTY
TRAILERS
*The Trailer With Red Wheels*

We also build 4-wheel models of Reliance Trailers in various capacities and types. If interested in big hauling ask us for instructive information on how trailers increase truck capacities and cut down time and hauling costs.



# Rheumatism

**A Remarkable Home Treatment Given by One Who Had It**

In the year of 1893 I was attacked by Muscular and Sub-Acute Rheumatism. I suffered as only those who are thus afflicted know for over three years. I tried remedy after remedy, but such relief as I obtained was only temporary. Finally, I found a treatment that cured me completely and such a pitiful condition has never returned. I have given it to a number who were terribly afflicted, even bedridden, some of them seventy to eighty years old, and the results were the same as in my own case.

I want every sufferer from any form of muscular and sub-acute (swelling at the joints) rheumatism, to try the great value of my improved "Home Treatment" for its remarkable healing power. Don't send a cent; simply mail your name and address, and I will send it free to try. After you have used it, and it has proven itself to be that long-looked-for means of getting rid of such forms of rheumatism, you may send the price of it, One Dollar, but understand I do not want your money unless you are perfectly satisfied to send it. Isn't that fair? Why suffer any longer, when relief is thus offered you free? Don't delay. Write today.

Mark H. Jackson, No. 895G Durston Bldg., Syracuse, N. Y.
Mr. Jackson is responsible. Above statement true.

America's Pioneer Dog Medicines

BOOK ON
**DOG DISEASES**
And How to Feed
Mailed free to any address by the Author
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118 West 31st Street, New York



**A&M reliable SEEDS**

# Plant Whip-Poor-Will Cow Peas

*For Summer Cover Crop*

# Prevent June Drop

THESE PEAS ARE THE MOST SATISFACTORY COVER CROP FOR SUMMER GROWING IN THIS SECTION

We now have a supply on hand and can make immediate delivery

ASK YOUR LOCAL DEALER

**Aggeler & Musser Seed Co.**
LOS ANGELES


# Are Horses Best?

(Continued from Page 7)

the lay of the land or size of the fields, but often it appears to be simply because of the habit of the farmer and customs of the community."

A. J. Mills of Hastings, Neb., says: "Many times have I been asked how I managed to farm one thousand acres without the use of tractors. My answer is this: 'Good drafters and big machinery make it all very simple.' In recent years I have found multiple team work very economical. By using big machinery with plenty of power to draw it I have saved much time and the work is done just as efficiently. A man with eight or nine good draft horses hitched to a four-bottom plow can plow over twelve acres per day. With smaller machinery more men must be employed. Eight drafters drawing a harrow that cuts thirty-six feet can cover about 80 acres a day."

We have shown that there is no increase in crop yields from the use of tractors, but that evidence does exist

**SAYS MR. HORSE LOVER:**
**"Never yet have I seen a tractor that reproduced its kind. My work mares pay for their feed by raising fine colts."**

that there is an actual decrease in crop yields where tractors are used. We have shown that there is no decrease in cost, but, on the contrary, the use of tractors means a higher cost for production than where horses and mules are used. We have shown that there is no saving in man power over what can be secured by the use of larger team units.

In conclusion, I CHALLENGE ANY TRUCK OR TRACTOR MAKER to produce evidence to show that farm operations can be done more cheaply with tractors than with horses or mules, they to pick any farm where tractors have been used, while I pick a farm where horses and mules are being used in large units, which is the way they should be used.

To make certain of a fair and dependable comparison of costs I suggest as a committee Prof. W. F. Handschin, chief of the Department of Farm Management, University of Illinois, and W. F. Peck of the Office of Farm Management, Department of Agriculture, Washington, D. C., and a certified public accountant, to be selected by them.

(Signed) WAYNE DINSMORE.

## Percheron Paid for Ranch

A FARMER named Gammon in Johnson County, Wyo., writes the following about a Percheron mare that he owns:

"I bought the mare seventeen years ago this spring. She had her second colt at side. I bought my ranch at the same time, paying $20,000 for it. The old mare has helped put in our crop every year. She is twenty-four years old, worked all last summer, and had twin colts the year before. Ten years ago I was offered $[illegible] for five fillies, four of which were [illegible]. Counting the colts I have sold out of the old mare, and the produce from her [illegible] that were foaled on my place, plus the offspring I still own, the old mare [illegible] practically paid for my ranch. I sold a two-year-old stallion out of the old [illegible] a few days ago for $[illegible]. I say to young men: 'Get a good Percheron [illegible] keep her raising colts by a [illegible]. She will earn you a h[illegible]'

# Do Tractors Lead?

(Continued From Page 7)

are misleading. For example, in quoting from Experiment Station reports, it is possible to omit parts of paragraphs which would alter the entire meaning of these passages.

It is very easy, in fact, for any paid propagandist to gather together statistics collected from various sources, which purport to convey the meaning he desires. But close analysis of such material usually reveals careful editing or selection to meet his requirements.

---

FOLLOWING is one of the most explosive of the communications received by the Editor. A California tractor man has his say. The safety valve is wide open!—Ed.

I'm not the only tractor man who has talked with individuals here and there that lugubriously speak of the failure of tractors and ask if mebbe the horse isn't the better.

It's more a matter of persbnalities

**SAYS MR. POWERFARMER:**
**"Never yet have I seen a horse that didn't eat when it was idle. I feed my tractor only when it is working for me."**

than figures, to my mind. It's easy to juggle statistics to show that animals are cheaper—just the same figures that seem to show a margin for the tractor. Why, according to a calculation based upon the 1920 Census, every person in the country will be insane in 1982—a result of prohibition or not, according to whether you wear a white ribbon or a red nose!

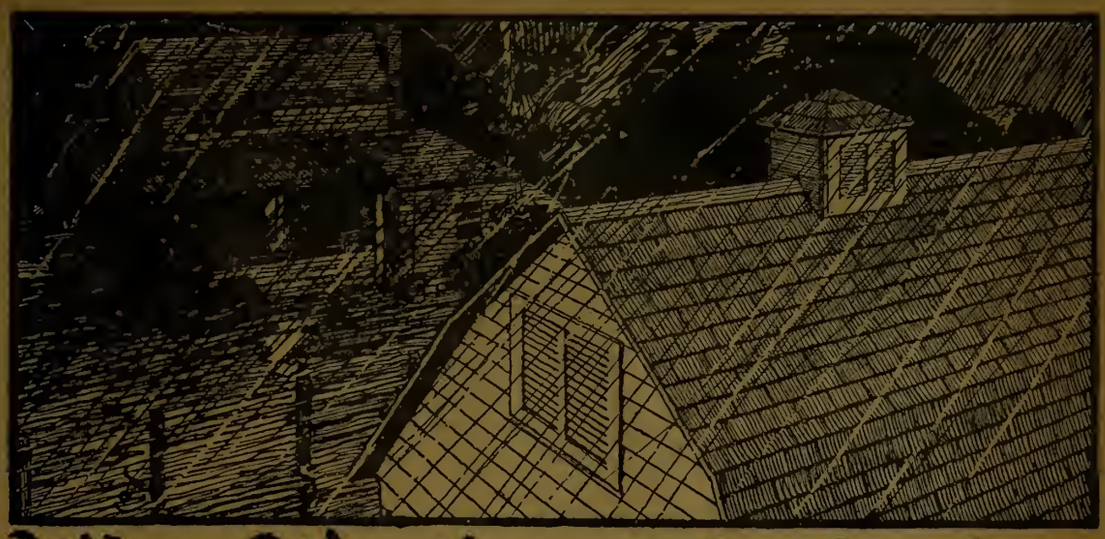
The tractor has come to stay. It saves time and labor—and time gets more valuable, and raw labor (the kind that is content to groom animals) more scarce (and rawer) as civilization progresses. Not that horses are doomed immediately—that's unreasonable. They will be long in the going. But they are going. The locomotive has replaced the stage coach, the automobile the buggy. Motor trucks are conquering the wagon and the tractor will eliminate the horse.

But as I said, it's a matter of personalities. I believe that in the great good average, if interest, amortization, working hours—everything—is included, the actual dollar and cents *cost* may be a standoff. Let's concede that much anyway.

But the ability of the tractor to concentrate power, as on a subsoiler; its usefulness on night shifts; its willingness to work hard in the summer sun—these like that figure to give the machine the best of it! But we are prone to keep away from figures and personalities.

Well, then, what persons have talked "Back to horses" to me? I'll tell you. A big farmer in Solano County, who fed his horses of his dead brother who had a barn full of cheap horses and no mechanical training! But he succumbed returning in the fall to the tractor!

An Orchard Company up in Shasta County had a sad tale of expensive repairs. Investigation showed a criminal neglect of the simple rules that would have helped the engine of most tractors and prevent overheating of the clutch. Some horses in the same dry game died [illegible] I very hope that [illegible] try [illegible] The S[illegible] and then they'll [illegible]

# Where Weather strikes hardest—The Roof!

The roof takes the brunt of all weather—rain, wind and hot sun. Keep your shingle roof in good condition—a neglected roof means the cost of a new roof soon.

## ORONITE SHINGLE OIL
### *Preserves Shingles*

Deterioration of shingles is caused by the penetration of moisture and air into the fibre of the shingles, hastening disintegration and decay. The natural oils in the wood evaporate and cracking and warping result. Your shingles need constant protection against the elements—rain, wind and sun.

Use Oronite Shingle Oil on all shingles either on roofs or on side walls. It is a high-quality preservative for shingles. It penetrates the shingle fibre and fills the pores with a moisture-resisting preservative. It retards evaporation of natural oils in the wood and counteracts the effect of age and exposure.

Oronite Shingle Oil is easy to use. It can be mixed with colors. Ask our nearest agent for formulas. Oronite Shingle Oil will make your shingle roof last longer and give better service to you.

STANDARD OIL COMPANY
(California)

## OTHER QUALITY PRODUCTS

especially prepared for use on the farm.

*Oronite Roof Paint*
A high-quality protective coating for prepared roofing and metal roofs.

*Mica Axle Grease*
Gives a durable, smooth lubricating film under every pulling condition. Keeps the axle cool; no hot-boxes, no gumming. The MICA makes it better.

*Eureka Harness Oil*
Preserves the original strength and life of leather and keeps it soft and pliable. Keeps harness "new looking."

*Standard Hand Separator Oil*
Correct Lubrication for your Hand Separator, under the conditions of high speed and close fitting parts.

# ORONITE *means* QUALITY

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CALIFORNIA IRRIGATED LANDS IRRIGATION plus California climate eliminates chance in farming. Let us tell you about Safe Farming on Sutter Basin Irrigated Bottom Lands. Write for literature to Land Department, SUTTER BASIN COMPANY, California Fruit Building, SACRAMENTO, or to W. L. White, 509 Balboa Building, SAN FRANCISCO, or to C. D. Saunders, 509 Security Building, LOS ANGELES.

BETWEEN Los Angeles and beaches, successful turkey ranch clearing three thousand dollars yearly from eggs alone. Proof given. Good six room modern bungalow, lawn, fine bearing fruit and shade trees. Buildings. Fenced. Close boulevard and schools. Cash $7500; without stock, $6500. Box 870, Orchard and Farm, Los Angeles, Cal.

## RAISE GRAPES

BUY 10 acres of our grape land at $60 an acre and have an independent income in three years. Sold on easy terms. You can arrange with us to plant and care for your land until it is producing. Call or write for descriptive matter. LEROY LEONARD, 524 Black Bldg., 4th and Hill, Los Angeles.

MEXICAN LANDS—400 acres in American colony, near Hermosillo and Southern Pacific Railway. Rich river bottom land; will grow anything; two crops each year. Investigate this opportunity to start big farming at small cost. Owner, 329 Ochsner Bldg., Sacramento, Cal.

OBLIGED TO SELL—100 to 300 acres Menifee Valley, near Riverside, fine for alfalfa, grapes, deciduous fruits and general farming; abundant water available; real sacrifice price. L. M. Pratt, 340 Chamber of Commerce Bldg., Pasadena, Cal.

FOR SALE—21 acres, near Lancaster; sandy loam soil; fine for alfalfa, hogs or fruit; oil prospects; flowing well; $1650, terms. O. Park Smith, 810 Wright & Callender Bldg., Los Angeles, Cal.

FOR SALE—20-acre chicken ranch with good buildings, with running stream. For further information, write to George McMurchy, P. O. Box 305, Fort Bragg, Cal.

## GOVERNMENT LANDS

300,000,000 ACRES GOVERNMENT LAND in United States. Send for free descriptive circular of our 100-page book, "The Homeseeker," tells where good farm, timber, grazing land is, or send $2 for book direct from the Homeseeker, Dept. 6C, 336 S. Broadway, Los Angeles, Cal.

RELINQUISHMENTS. Antelope Valley, Los Angeles County. Fine alfalfa and fruit land. Artesian water belt, $5 to $10 per acre. Burley, Lancaster, Cal.

## REAL ESTATE—Sale or Exchange

FOR SALE OR TRADE—600 acres good level unimproved land in Klamath Co., Oregon. Wanted in trade, place suitable for bees, ducks or chickens. Price $10.00 per acre. W. H. Johnson, 22 Maple Ave., Watsonville, Col.

ANTELOPE Valley land, improved and unimproved, in water belt. Will grow anything. $30 to $500 per acre. Cain, Lancaster, Cal.

## FARMS WANTED

WANT to hear from party having farm for sale. Give particulars and lowest price. John J. Black, 110th St., Chippewa Falls, Wisconsin.

WANTED—To hear from owner of good ranch for sale. State cash price. Full particulars. D. F. Bush, Minneapolis, Minn.

WANTED—To hear from owner of land for sale. O. K. Hawley, Baldwin, Wisconsin.

## MISCELLANEOUS

RHEUMATISM formula, $1. No poison drugs to take. Guarantee cure. Will give below named free for short time, with rheumatism formula: Make two pounds of peanut butter from one, 35c, cost nothing to make. South African Cold Bulb, worn on your chest prevents you from having cold, 50c. All for $1. C. W. Lingner, Box 558, San Pedro, Calif.

## TAXIDERMY, FUR DRESSING

FURS tanned, made up; game trophies mounted. Address "Parcels," H. F. Lorquin, 268 Market St., San Francisco, Cal.

## ASSAYERS AND GOLD BUYERS

GOLD, amalgam, rich ore bought, cash; assaying etc. Pioneer Assaying Company, 630 Market street, opposite Palace Hotel, San Francisco.

## GUINEA PIGS, MICE, RATS, ETC.

GUINEA PIGS for sale. Blacks, whites, reds and creams; also broken colors. Write me your wants. J. E. Love, 104 South Rose Ave., Lamanda Park, Cal.

## PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, Calif. - Established 50 years. Send for free book on patents.

## POULTRY

CAPACITY 170,000 EGGS
30,000 CHICKS EVERY WEEK

WE are running at full capacity and we are in a position to supply all the chicks and turkeys our customers need. Entirely an electric hatchery, insuring you the best chicks from the best eggs; properly handled, honestly counted (two extra chicks to the hundred); promptly delivered by parcel post or express anywhere within 72 hours' run from Los Angeles. we surely have your favorite breed in the following kinds: Rhode Island Reds, Barred Rocks, Anconas, Black and White Minorcas, White or Silvered Laced Wyandottes, Brown Leghorns, Buff Leghorns; also our dependable Oregon McFarland White Leghorns. Pekin ducklings and baby turkeys. Why not send for price list and place your order for early delivery?
REDWING HATCHERY,
2030 E. Florence Ave., Los Angeles, Cal.
Phone South 5035-W.

WHITE LEGHORN baby chix for May and June delivery, from heavy laying, Hoganized stock. Safe arrival of full count, live, strong chix guaranteed. $12.50 per hundred $120 per thousand. 418 Sixth St., Pioneer Hatchery, Petalum, Cal.

ANNUAL SALE CHICKS, EGGS, PULLETS, BREEDERS, SOME GREATLY REDUCED! Our early maturing heavy winter laying 180-290 egg Leghorns, Reds, Anconas, Rocks, Minorcas, Wyandottes, Andalusians, Chicks, Turkeys, often clear customers. $5. Customers report Leghorns, Reds laying at five months. May, June chicks grow quickest into layers, 140,000 electrically hatched. "Profitable Poultry" proof free. W. Beeson, Pasadena.

S. C. WHITE LEGHORN baby chicks from the heaviest laying (Hoganized) stock. Safe delivery; live vigorous chicks guaranteed. No money in advance; pay on delivery. Price from May 15 to June 30, $3.50 per 25, $7.00 per 50, $12.50 per 100. Special prices 500 and 1000 lots. Largest electric hatchery in the world. Established 1898. Must Hatch Incubator Co., 432 Seventh St., Petaluma, Cal.

BABY CHICKS from my Hoganized, heavy laying strain of pure-bred. S. C. White Leghorns, carefully selected for laying and standard qualities. May and later deliveries for $13.00 per 100; $60.00 per 500. Correspondence solicited. J. R. Heinrich Poultry Yards, Arroyo Grande, Cal.

MAY CHIX
BEGINNING with May 12 delivery our thorough bred Barred Rocks and Black Minorcas, $17.00 per 100; R. I. Reds, $16.00. White Leghorns $12.00 per 100. Denton Poultry Yards, Campbell, Calif.

BLUE Andalusians—Eggs and stock for sale. Daniel Calbreath, Monmouth, Ore.

READ the **SUPERTYPE** See Ad.

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SAVE your roof for 15c a gallon. Our rich Asphaltoid roofing paint. The finest roofing and preservative paint under sun. Why pay $1.00 for what you can get for 15c? Woolner Oil Co., 4th and Commonwealth, Los Angeles, Cal.

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AGENTS—To sell Spark Plug Testers. Write National Spark Plub Tester Company, Benton Harbor, Mich.

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CUTHBERT RASPBERRIES, $12.50 per M. or $2.00 per hundred, F. O. B. Alvadors, Ore. E. P. Saunders.

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5000 VALENCIAS, 2000 Eureka Lemons, 3000 Mission Olives, 100,000 Fla. Sour Orange seed-bed trees; 50,000 sweet orange seed-bed trees. SOUTHLAND NURSERIES, 1341 E. Colorado St., Pasadena. Phone Colorado 6352.

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12 VARIETIES Chrysanthemums, $1.20, parcel post. Eagle Rock Garden, Rt. 1, Box 532, Los Angeles.

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### TOBACCO FOR SALE

TOBACCO—Kentucky Natural 1919. Leaf mild or strong—2-3 saved. Best chewing ten pounds, $3. Smoking ten pounds $2. Any amount sold. Producers Distributors, Murray, Kentucky.

TAYLOR'S Tampa Havana 5" Cigars, $7.50 per 100 postpaid. J. R. Taylor, Box 661 Tampa, Fla.

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# How to Grow Berries

(Continued from Page 8)

The "ever-bearing" varieties, such as Americus, Superb and Progressive, are grown to some extent in the home garden and for special trade in summer and fall, but are not grown generally for shipping or canning.

The yield of strawberries in the Northwest under favorable conditions is from 4,000 to 7,000 pounds per acre.

**Inter-planting Strawberries**—Strawberries can be planted profitably between rows of cherries, pears and other tree fruits. A profit thus can be taken from the land while the trees are coming into bearing.

## Red and Black Raspberries

RASPBERRIES thrive best in a rich, sandy or clay loam. They are short-lived in either very sandy or heavy clay land. Red raspberries are propagated by means of root suckers. With black raspberries, new plants usually are produced by bending down new canes and covering their tips with a few inches of earth. This is best done in early fall, so that a good root system develops before winter.

After the ends have rooted, the young plants may be removed, with a few inches of cane, and set in the nursery row or permanent location. These plants are called "tips."

"Transplants" are tip plants that have been grown a year in the nursery before setting in the field. Usually they have a better root system than tips. Under ordinary conditions of planting, the root system of the tips or transplants should be at least three inches in length.

**Planting Raspberries**—Raspberries usually are set out in the early spring. The plants are set in rows seven or eight feet apart. Red raspberries are placed 2 or 2½ feet apart in the row. When set 2½x7, about 2,500 plants are required to the acre. Black raspberries are better placed 3 or 3½ feet apart in the row. When set 3x7 feet, 2,075 plants will be required to the acre.

Furrows may be drawn the proper distance apart for the rows in which the plants are set. The roots should be covered with 4 to 6 inches of fine soil, which should be firmly packed around them to prevent drying. The furrows need be only half filled with soil, and gradually brought to a level during later cultivation.

**Varieties**—Our yields of red raspberries range from 5000 to 7000 plants per acre.

The most common varieties of red raspberries are Cuthbert, Antwerp and Marlboro. The Marlboro fruit is bright red in color, attractive, poor in quality, firm and good for shipping. The Antwerp fruit is large, sour, dark red and prolific. The Cuthbert has fruit smaller, but rich in quality and more desirable for canning.

The black raspberry is not as commonly grown on the Pacific Coast as it is in the Eastern and Middle Western States. The Cumberland and Munger varieties are grown to a limited extent. The demand for this type of berry deserves increased plantings, particularly on the heavier soils.

**Inter-Planting**—Raspberries should not be planted among trees. By the time the fruits are in full bearing the trees need the land. Furthermore, it is impossible to head the trees as low as is necessary in order conveniently to accomplish pruning, spraying and harvesting of the fruit. Consequently, the trees become neglected, and a neglected orchard, one of the greatest curses of the fruit industry, results.

Another disadvantage of inter-planting—Most fruit trees and berries bloom at different seasons, and as the trees are sprayed poisons are apt to fall on the berry blossoms, injuring the bees and other insects essential for pollination of the berries. This alone should discourage a grower from planting bush berries with trees.

It may be profitable, however, to inter-plant the young berry plants with field crops. A "low" crop, such as potatoes, peas, beans or roots may be planted midway between the rows of berries the first season.

**Thinning New Canes**—As soon as the young shoots of raspberries have grown 12 or 18 inches in length the desired number of strong shoots should be selected from each plant for the next season's bearing canes and the weaker and thinner shoots cut out. This number will vary with types and individual plants, some being stronger than others. In general, the number for raspberries is six to ten, but it is best, as a rule, to leave one or two extra shoots in each hill, in case some are broken during the harvest season.

(In later articles Professor Stahl will discuss blackberries and loganberries. Also he will illustrate and describe methods of training and caring for established berry plantations, and will give practical information on harvesting and marketing.—Editor.)

# Organizing in Oregon

(Continued from Page 25)

paying members 80 cents, some of our neighbors who were 'scabbing' on the outside laughed at us, because they were getting 81 cents. But 'he laughs best who laughs last.' Our New York shipments at that time netted us 91 cents, again giving us 10 cents the advantage.

"Before we organized here in Oregon the Seattle egg market was always higher than Portland. Now it is the other way, and Puget Sound poultrymen are begging us to handle their eggs. Within a year our association has grown from 65,000 hens to 165,000. Our office is literally swamped with membership applications. 'Nothing succeeds like success.'"

## Experience of Dairymen and Wheat Growers

THE Oregon Dairyman's League has had all kinds of trouble during its short and checkered career, but is bound to win out, since its members are held together by a six-year contract. Free importations of Danish and Australian butter have played havoc with our market, in connection with the unprecedented drop in prices of all farm products.

The Tillamook cheese association had its full share of trouble and disaffection of members during the first two years of its existence, but now it is one of the most successful co-operative organizations in the country.

The other evening I heard John Smith, of Sherman County, tell how he had been organizing the wheat growers of Eastern Oregon. Over 18,000,000 bushels already have been signed up and success is assured. The wool men are organizing, and even the "pepperminters" are getting in line.

Last week the writer helped organize the farm bureau in Clackamos County and is now doing the same work in Washington County.

The outlook is encouraging for agricultural co-operation in Oregon.

### UNIVERSITY FARM SCHOOL BOYS WANT WORK

ACCORDING to Professor Edwin C. Voorhies of the California College of Agriculture, many students are desirous of obtaining work on farms throughout the State this year. The Professor emphasizes the fact that these are not youngsters out for a lark, but serious-minded young men who are anxious to learn by experience.

In addition to the 1,000 or more able-bodied boys who seek positions, there are 30 or 40 young women in the College of Agriculture who also want to get some real practical experience this summer.

Anyone having openings for these students is requested to get in touch with Professor Voorhies at the College of Agriculture, Berkeley, Calif.

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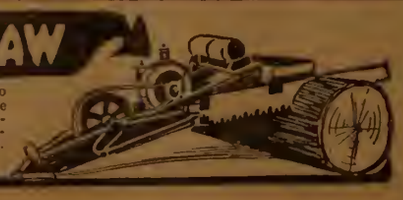

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112 S. Los Angeles St., Los Angeles


# Do You Deserve to Own a Tractor?

By Walter H. Gardner

IT MUST have been about ten years since that old automobile had started to run off its milcage! The fenders had been chewed up, the upholstery had begun to moult and there were vestiges of three coats of paint. But the purr of the motor was mighty sweet, a tribute to the loving and skillful care of its owner—a service-man who was taking me up into the mountains to sell some tractors to a mining company.

A streak of mud on an up-grade—a quick drop into second gear—and suddenly we were stalled! The gear shift failed to work.

A swift diagnosis and nimble work with the wrench brought forth a broken shifter lever, "chewed up" beyond repair. Ten miles to a town and 20 to a garage! But—there was an abandoned cabin on the hill above us, a stove poker, an old gasoline cook stove of the portable type, and one versatile, rough-neck service-man!

Gasoline from the auto started the little stove, the old soft-steel poker was heated until pliable and hammered out with a ball pein hammer on a granite boulder. An eye was worked in one end with a screw driver—and once more we were bound for higher altitudes after a stop of just an hour and five minutes.

Some three weeks later I stopped beside a beautiful racing car that was stalled on the Santa Susannah grade. All a-shimmer in shiny turquoise; lines like a torpedo boat destroyer; gleaming glass and beaming brass—but it wouldn't run! The owner, sulkily profane, sat huddled in his leather coat waiting for a tow.

Now, I'm not a mechanic—I never can understand why opening the throttle makes the engine run faster, nor remember whether hot weather demands a thinner or richer mixture, nor do I petend to know any other car than my own. But I was curious, and on lifting the gorgeous hood, saw at once that the high tension wire had slipped a connection. I wiggled it back into place, and the $5000 car was alive once more.

Now, why in the name of the eternal fitness of things, shouldn't that splendid and beautiful mechanism have been given to the service-man who would have understood it and groomed it and appreciated it to the full? Why shouldn't the empty-pated, helpless owner been given instead, the rattling hulk of the service-man's old car with which to learn the rudiments of mechanics? He didn't deserve the car he owned!

A LIVING THING

The gasoline motor, the automobile, the tractor are triumphant proofs of the development of human knowledge and science. They are iron and steel and brass—yes, but isn't the shudder that you feel when you hear a feminine amateur driver helplessly clashing the gears in traffic while her motor runs wild, much the same as the thrill of sympathy that would go forth to a beaten horse?

But enough of preamble—let's be practical.

Nine out of every ten men who have owned tractors have succeeded with them! Out of every ten men of the remaining minority nine have failed because of their own shortcomings—not because of the tractor's!

No man should be allowed to buy a tractor if he hasn't a decent place in which to keep it! The S. P. C. A. would prosecute the farmer who tied a horse to a post in the open, through rain and snow and summer heat. The Society for Prevention of Carelessness with Valuable Machinery ought to have the right to sentence to ninety-nine years and a day, the farmer who lets a pile of wood, a thousand dollar car, or a home-brewing outfit crowd a two thousand dollar tractor out in the rain.

A man who hasn't at least a superficial knowledge of gasoline motors should be prohibited from owning a tractor! Fortunately, most farmers of today are mighty good mechanics—but those who are not should attend a university short course or a mechanical school before trying to jimmy apart the magneto with the wrong end of a monkey wrench.

TRACTOR STANDS ALONE

It's all very nice when an automobile or a truck develops a little ignition trouble or a loose bearing—it can limp into town, where there's a garage and an expert. But the three-mile-an-hour tractor usually must be fixed on the spot, and it makes for saving of time, money and temper if the driver can diagnose ordinary ailments and correct them.

It's a good rule to take as good care of the tractor as one would of a valuable horse.

But—the tractor owner who doesn't get more work out of a tractor than out of his horses is failure bound. He doesn't deserve a machine either!

To make the most out of the tractor, it must be kept busy! It must be used to its full normal power. Plowing generally should be deeper and more thorough. The tractor, if a larger size, is just the thing for subsoiling—and that operation generally is a wonderful revenue increaser in the orchard.

The overhead expense of maintaining a tractor should be distributed over many tasks and many months. The owner shouldn't be above giving a little help to his neighbor. He should use his tractor for land clearing, stump pulling, silo filling, ensilage cutting, land checking, mowing, scraping, for a score of chores beyond mere plowing. A man who can't tell time doesn't deserve to own a watch. The farmer should make use of his tractor if he wants to be satisfied with it.

HOW TO PLAY SAFE

The small minority of owners who are disappointed with their tractors sometimes own the wrong machine. There is no reason now-a-days for a farmer to buy any but the right tractor—although there used to be. But when a man can climb in his auto and visit a score of tractors in his neighborhood—not new ones, but machines that have stood the gaff of busy seasons—and talk with the men who have driven them, there is mighty little chance for him to invest in a tractor that's too big, too small, or of the wrong type.

Therefore, the man who does deserve to own a tractor will:

Purchase the tractor that he has good reason to believe will be satisfactory;

Keep it properly greased and protected from the elements;

Use it to disc faster, plow deeper and work longer during the days when the soil is just right;

Use it for every farm task to which an ingenious mind can apply mechanical power;

Respect it and treasure it as a valuable mechanism and faithful ally.

**Tabloid Tractor Tragedies**

By W. H. Gardner

*Of dented dome*
*Died Oscar Carr.*
*He used a home-*
*Made starting bar!*

*This mossy bank*
*Hides Wallace Wright.*
*He filled his tank*
*By lantern light!*

*Here rests Bob Lee—*
*A tear for him.*
*He didn't see*
*That hanging limb!*

*An ether prime*
*One frosty morn,*
*Won Bill a toot*
*From Gabriel's horn!*

**Enjoys Orchard and Farm**—"I [illegible] your magazine a [illegible] publication in every [illegible] luck to you."—C. F. [illegible] Cal.

# Modern Irrigation Efficiency

By Albert J. Mason

THE California system of irrigation, involving the use of underground pipes and equipment for control of the water under pressure, is spreading rapidly to all parts of this State as well as to other sections of the West, according to Newman Essick of Los Angeles, distributor of gates, valves and other water controlling appliances.

Gradually but surely, Mr. Essick asserts, the efficient California system is being adopted by farmers and fruit growers in Arizona, New Mexico, Oregon, Washington, Nevada and other Western States. In parts of California so efficient is the use of water by this method it will irrigate as much as nine acres per miner's inch of flow.

Through the use of the cement pipe losses from seepage and evaporation are reduced to the minimum. Furthermore, the surface of the soil is left free of encumbrances and in condition for efficient cultivation.

### MUCH EXPENSE AVOIDED

The expense of ditch cleaning is avoided, losses due to gopher holes are prevented, and distribution lines can be run through low places and over the ridges, making it possible to square up the fields and reduce the cost of grading.

As a rule less labor is required to irrigate from pipe lines than from open ditches. Again, there is a great saving of land; open ditches occupy one per cent or more of the area irrigated, while the necessity of turning implements on either side of the ditch increases the loss to 3 or 4 per cent.

Cement pipe equipment now is being used in all forms of irrigation, including flooding from field ditches, in basins and in long lands between borders and also, of course, in furrow irrigation.

The principal reason for failure on the part of irrigation companies and individual land owners to install this modern equipment is lack of funds. The expense in terms of first cost is considerable, but when the points outlined above are taken into consideration frequently it is found that the added expense is more than justified; in fact, is an economy in the long run.

### MODERN EQUIPMENT

So far have irrigation engineers progressed with the pipe system that special equipment for almost every problem has been devised. This includes headgates, hand-wheel gate-raising devices cut-off gate valves, standpipe caps, air valves, portable hydrants, slap valves which prevent return flow of back water, water meters and special alfalfa valves which can be installed flush with the ground so as to present no obstructions to the mowing machine.

Many cement contractors in California are making the pipe, and expert advice is available to the orchardist or farmer who contemplates installing a modern, efficient system.

It is freely predicted that as irrigation water becomes more scarce and costly thousands of miles of the cement conduits and distributing systems so common in California will be laid in other irrigated districts where wasteful methods still are employed.

## Lime Is One of Nature's Choicest Gifts

FOLLOWING the discovery of a vast bed of decomposed marine shells near Lomita, a company has been formed in Southern California for the excavation and processing of the shell, which is said to analyze 96.39 per cent pure lime.

Lime in itself is not a powerful, direct fertilizer, but it aids in the release of other elements of fertility, increases aeration of the soil, improves drainage, tends to neutralize black alkali and generally improves the physical condition of the soil. Furthermore, it neutralizes acidity, promotes bacterial action and increases the availability of potash, one of the most valuable and expensive plant food elements.

The direct fertilizing action of lime is limited principally to the addition to the soil of available calcium. Non-available forms of ammonia, such as the carbonates, are converted into soluble forms, such as sulphates. Almost any soil is improved by the addition of lime and experts believe the discovery of the beach deposit of ancient decomposed shell will add much to the wealth of the State.

Not only in soil treatment, but also in many other ways, lime is one of our most useful natural products. Mixed with scratch feed or grain it assists in promoting health and egg production in the poultry flock. As a neutralizer of carbonic acids it purifies water. It is the basis for many compounds used in various industries, including tanning, distillation, steel, paper and paint.

So widely is lime used among farmers in the Middle West that many of them own either individual or co-operative pulverizing machines for crushing the natural lime stone found in these sections, which, however, seldom approaches in availability and high lime content the decomposed shell of California.

Lime has been called Nature's soil tonic. While not strictly speaking a "medicine" in itself, it aids Nature in curing soil sickness and acts as a catalytic agent in promoting the action and availability of plant foods.

## Iceless Refrigerator

AMONG the most successful household appliances developed in recent ...ars are the iceless refrigerators now ...ing manufactured by California ...mpanies.

The inventor of the material used in ...ne of these coolers is said to have ...veled in hot countries where he be...me familiar with the principles em...yed by those who make their homes ... d sert regions.

The material he finally evolved is a ...nufactured stone-sponge which per...s evaporation of sufficient water to ... the contents, but which is both ...ng and light in weight. It is ex...ted that coolers made of this prod... will replace on many farms and ...r valleys of the Southwest the ...de coolers so frequently ...

... principle of the evaporator cooler ...trated in a simple way by ... on...if when the face is cov... with perspiration. The evapora... ...mp...e s gives a feeling of ...ful coolness.

...btedly iceless refrigerators will ... great boon to thousands of ... rural families.

... d Farm Preferred—I sub... ... agricultural papers, ... FARM the ... ...cain,

## Implement Care

A SMALL home-made wooden paddle and a stiff bristle brush kept handy in the implement shed to remove dirt from all implements as soon as they are brought in will protect the paint and save dollars in repair bills. A brush with wire bristles works well on some parts. A coat of linseed oil, preferably hot, will greatly lengthen the life of handles of garden and carpenter tools.—Hugh V. Harris, Sebastopol, Cal. (H)

## Better Septic Tank

IN order to secure better drainage for my septic tank I blasted the ground around the drain so that it was opened up to the gravelly subsoil.

At the end of the drainage pipe also I put in a charge of powder, digging out the hole thus made and filling it with coarse gravel. We never have been troubled with an overflow from this tank.—Albert J. Mason.

WHEN elevating the front of the wagon bed in order to allow more space for the front wheel in turning, taper the main sides to the frame. The necessary space thus may be obtained, at the same time keeping the top level. The appearance of the wagon will be improved and the seat kept level.—Beverly Young, Arvin, Cal. (H)

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## Statement of the Ownership, Management, Circulation, Etc., Required by the Act of Congress of August 24, 1912,

OF

# ORCHARD *and* FARM

Published Monthly at Los Angeles, California
FOR APRIL 1, 1920.

COUNTY OF LOS ANGELES, } SS
STATE OF CALIFORNIA, }

Before me, a Notary Public in and for the State and County aforesaid, personally appeared W. Tyler Smith, who, having been duly sworn, according to law, deposes and says that he is the Business Manager of the Orchard and Farm and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to-wit:

1. That the name and addresses of the publisher, editor, managing editor and business managers are:

| Name of | Postoffice Address |
|---|---|
| Publisher, Country Life Pub. Co. | Los Angeles, Cal. |
| Editor, J. C. Knollin | Los Angeles, Cal. |
| Managing Editor, J. C. Knollin | Los Angeles, Cal. |
| Business Manager, W. Tyler Smith | Los Angeles, Cal. |

2. That the owners are: (Give names and addresses of individual owners, or, if a corporation, give its name and the names and addresses of stockholders owning or holding 1 per cent or more of the total amount of stock.)

William R. Hearst, President.....New York
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3. That the known bondholders, mortgagees and other security holders, owning or holding 1 per cent or more of total amount of bonds, mortgages or ther securities are: (If there are none, so state.)

None

4. That the two paragraphs next above, giving the names of the owners, stockholders, and security holders, if any, contain not only the list of stockholders and security holders as they appear upon the books of the company, but also, in cases where the stockholders or security holders appear upon the books of the company as trustees or in any other fiduciary relation, the name of the person or corporation for whom such trustee is acting is given; also that the said two paragraphs contain certain statements embracing affiant's full knowledge and belief as to the circumstances and conditions which stockholders and security holders who do not appear upon the books of the company as trustees hold stock and securities in a capacity other than that of a bona fide owner; and this affiant has no reason to believe that any other person, association or corporation has any interest direct or indirect in the said stock, bonds or other securities than as so stated by him.

5. That the average number of copies of each issue of his publication sold or distributed through the mails or otherwise to paid subscribers during the six months preceding the date shown above is 53,079 (This information is required from daily publications only.)

(Signed) W. TYLER SMITH, Manager.

Sworn to and subscribed before me this 7th day of April 1921.

(Seal) H. O. HUNTER, Notary Public.
My Commission expires May 17, 1922.

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# Sunflowers

## The "Green" Hand

His Nibs—"Say, you don't have very good accommodations for your men. There's no soap in the bunk-house, and I'd like a shampoo."

The Boss (to his wife)—"Mary, get Bill some Ivory soap, he wants to wash his head."

## Human Nature

*We want what we want when we want it—*
*Oh yes,*
*And we'll get what we get when we get it, I guess.*
*But when we have got what we wanted you see,*
*Why, then we don't want what we've got ten, and—Gee!*
*What have we got when we get it?*

## Made a Hit

Sweet Young Thing—"I went to the dentist today."

Her Chum—"How do you like his work?"

S. Y. T.—"Oh, I think he's a darling. He said I had beautiful teeth."

## Theory Doesn't Work

The Mournful Sage (reading)—"'What the modern girl needs is more exercise and less candy.' That may be true, but when you ask your best girl to take a walk and your rival sends her a big box of candy you are misunderstood and underestimated."

## Two Viewpoints

The Joke Editor (running about wild-eyed)—"Has anybody seen those new jokes I wrote and left on my desk?"

The Office Kidder—"We've read them, but we haven't seen them."

## Clear as Mud

*Some folks eat to live, they say,*
*And others live to eat.*
*But I am just the other way—*
*My system can't be beat.*

*Justin Nutt.*

## His Choice

A man had taken into his confidence an intimate friend touching a most important moment of his life.

"I can," said he to his friend, "marry a rich girl whom I do not care for, or a penniless girl whom I love dearly. I am in great doubt. Which should I do?"

"Follow the dictates of your heart, old man," was the prompt response, "and be happy. Marry the poor girl. And, say—er—would you mind introducing me to the other?"

## The Boy's Hope

"I hear your father is ill?"

"Yes, quite ill."

"Contagious disease?"

"I hope not; the doctor says it's over-work."

## A Discovery

"Say, Pa!"

"Well, what now?"

"I'll bet you hollered when you was a boy."

"Why, what do you mean?"

"I just let grandma wash my face an' gosh, she hurts twice as much as you do."

SUGGEST A TITLE

For the best title, verse or joke not to exceed [illegible] words, to accompany this picture, ORCHARD AND FARM will give one dollar. The cleverest suggestions will be published in this space next [illegible]. Write for further details.

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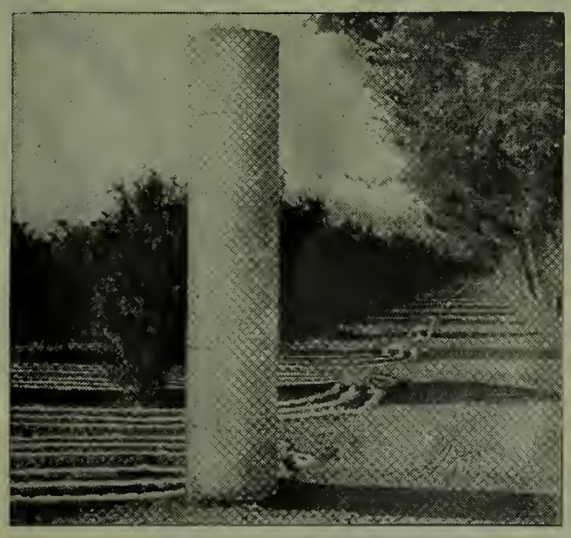

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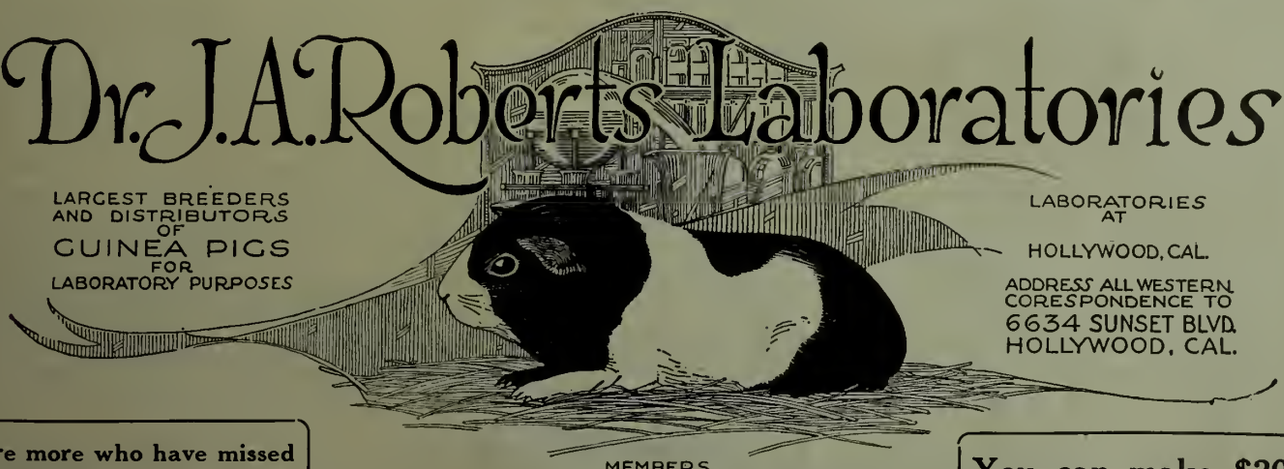

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You will be doing a good turn for humanity in raising cavies, for we never can tell when some of us will contract pneumonia and nothing will counteract same but serum made from cavies.

You have seen our ads for the last 14 years in all the popular papers. Those who are the most successful in life are the ones who grasp the opportunity when it presents itself.

In order to supply our ever-increasing demand for cavies (guinea pigs) for use in hospitals, laboratories, etc., we have opened a California branch. Few industries offer such profits at such investment of money and time. Foundation stock can be purchased for only a few dollars and cost of raising is only about 5 cents per head. We agree in writing to purchase all the cavies you raise from stock purchased from us, or their descendants, and will pay $1.20 a pair for animals 2 months old or older delivered. Even a few pens should pay you well. Send for booklet about breeding, care and money-making opportunities raising cavies.

A hundred breeding female cavies, and they have five litters a year, which is five hundred litters, and the Government figures three young to a litter, which is 1500 young, and figure that the first three litters from your original 100 breeders will have young during the same year, that will be 300 litters, and at three to a litter, which amounts to 900 young. Add the above 1500 young to 900, makes the total of young from your original cavies 2400 for the year, and at our contract price of $1.20 per pair, for you can rest assured that about half will be males and half females, and your profits for the end of the year will be $1,440.00 from your small investment, and you will still have your stock that you had to begin with.

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YOU can set it down as a pretty pat rule that the "feel" of a feed means *nothing*.

Texture is about the least important thing in the world when you buy feed. Color is about the least important thing, too. Feed value is the *most* important thing. For *feed value* is the thing you're buying—nothing else and nothing less.

Experience has taught us that proprietary feeds cannot be manufactured in an economical way if color and texture are strictly adhered to. A change in the manufacture of different colored corns, different colored wheats, different colored sorghums or different colored meals immediately shows a change in the color of the by-products. But here's the essential point: *there's no change in feeding value.*

So, why fuss over the "feel" of a feed when the thing you're paying for—the thing your hens are praying for—is feed value? Seasoned poultrymen who use SURELAY year in and year out know this. They know that, regardless of "looks" or "feel," SURELAY is a uniform quality-feed that makes hens pay by making them lay. And that's the only test that interests them—or you!

You can't "go wrong" on SURELAY because our daily laboratory tests make sure that every batch of the feed "goes right" in the blending. That cuts out guess-work in the making and guess-work in the feeding.

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That's why we're anxious to bring *you* into the fold. If you haven't seen our booklet, "Make Hens Happy," mail the coupon for a copy of our new edition. You needn't bother to write a letter—although we're ever ready to discuss your feed-problems with you.

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CALIFORNIA STATE

# ORCHARD and FARM

JUNE, 1921

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TEN CENTS

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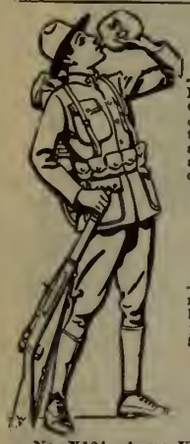

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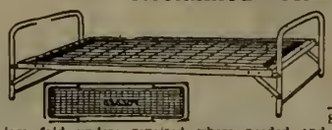

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DEPT. 29, LOS ANGELES, CALIF.

# ORCHARD and FARM

ESTABLISHED 1888

Published Monthly by Country Life Publishing Company
1111 South Broadway, Los Angeles, California

"THE SILENT PARTNER OF THE SUCCESSFUL FARMER"

Entered as second class matter at the Post Office of Los Angeles, California, under act of Congress March 3rd, 1879.


**OUR EDITORIAL POLICY**

[illegible] hard and Farm is a magazine of, by [illegible]d for agricultural people. We believe [illegible]at to the tiller of the soil is due the [illegible]t that life affords. We believe that he [illegible]s the bulwark of the Nation. We honor [illegible]im as the basic producer. His problems ar[illegible] our problems; his triumphs, our triumphs; his joys and sorrows, ours. To record his achievements and expose the duplicity of his enemies, to fight for and with him; to give him genuine help and practical information; to assist, entertain and inspire every member of his happy household—that is the policy of Orchard and Farm.

**SEASONABLE SUGGESTIONS**

Here it is summertime, fly-time and picnic time—time for June weddings, and time to keep cool. June is the month when the poets write cryptic rhyme. June to the kiddies means freedom from school. This is the time for a new garden planting, but also the month when the bugs do their worst. Think when you see all the animals panting, they—and the plants—may be suffering from thirst. The first breath of summer may make us feel "dopey"; perhaps we're inclined to rebel at our toil, but June is no month to be grouchy or mopey. It's then Nature gives us her wealth from the soil.

## Pithy Paragraphs

It's a rare task that is very well done.

If the other fellow is always wrong, don't look further for a cause of failure.

Forbidden fruit is apt to cause indigestion, and wild oats usually is affected with smut.

A man is like a mowing machine. When he works with a lot of noise it is pretty certain he's not very efficient.

Two horses died on the farm. One was very old, but working hard to the end; the other was much younger, but pensioned and idle.

A honeymoon on the American plan: After the wedding bells, change the "e" to an "i" and send them to father. Romance is little concerned with finance!

America is turning from jazz and garish display to wholesomeness and rugged simplicity. "Those who serve" are stepping forth as the leaders. There is a heartening tendency to weed out parasites and reward honest endeavor. Who says our country is going to the dogs?

*Jas. C. Knollin*

### HELPFUL SUGGESTIONS CONTEST

In order to allow more subscribers to take part in the present contest, we have decided to continue it for three months. In September the cash prizes of over $150 positively will be awarded. Take advantage of this extension! Write the editor, describing your money-saving plan; your home-made device for lightening the work; your system for increasing efficiency. Illustrations desirable but not required. Do it now. You may win one of the prizes with very little effort.

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## Coming Soon

Another article on agriculture in Alaska, by E. J. White.

A helpful legal discussion by Willard G. Cram, who is writing a series for ORCHARD and FARM.

More communications in the Horse vs. Tractor controversy, omitted this month because of insufficient space.

Another entertaining short story, written especially for ORCHARD and FARM by Albert Constant Jameson.

Many helpful features, describing the actual accomplishments of real people—true-to-life "stories," for which ORCHARD and FARM is so widely and favorably known. Don't allow your subscription to expire.

### RICE DAY

By the Governor's Proclamation California Rice Day will be celebrated on June 11th. The industry is an important one in the development of the State, and the Rice Association of California has launched a State-wide campaign to acquaint the consumer with this highly nutritious product. Its use as a breakfast cereal, as well as a vegetable and dessert is encouraged because of its high food value and economy.

### LITTLE, BUT—OH MY!

Have you been taking full advantage of ORCHARD and FARM'S complete service? The little classified ads in the "Farmers' Market Place" convey many real opportunities. Look them over this month. "You'd be surprised."

### THIS GOT HIS GOAT!

*The Farmer's Wife (screaming)—"Stop, this instant! What do you mean by frightening the children. How dare you!"*

*The "Green" Hand—"I beg pardon, missus, but the Boss told me to stake the kids out in the pasture."*

This is carrying the "kidding" a little too far, which is true of many farm papers that are given largely to froth. The publishers of ORCHARD and FARM, however, try to mix a little spice with the heavier ingredients so that it will be as readable as it is helpful. If you like the proportions, please tell your friends about "The Farm Magazine of Personality."

### A Creed in Twelve Chapters

**(6) Optimism**—Optimism is the motive power of a successful life. Without it labor lacks incentive and endeavor has no goal. Optimism is a form of faith, a faith in the possibilities of the future, a faith in the ability to overcome and to achieve. Optimism destroys suspicion and doubt which have done more to prevent success and happiness than all the other mental evils to which man has fallen heir. No height is too steep, no reward too great, to be won by youthful energy if it be impelled by the magic touch of optimism. Look forward, look upward and press onward with hope and confidence that all will be well.
—Robert Lansing.

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STOCKTON, CALIFORNIA
THERE'S A DEALER IN YOUR LOCALITY

ORCHARD and FARM

VOL. XXXIII. JUNE, 1921 NO. 6

# From Saber to Plowshare in Mexico

*HAS "Manana" really come at last? Is our next-door neighbor on the South actually getting down to business? The true agricultural situation in Mexico is set forth in this timely article, prepared especially for ORCHARD and FARM. Its author is closely in touch with the Obregon administration, and has made a special study of agricultural conditions in this formerly turbulent Republic.—The Editor.*

By Sherwood W. Whitcher

THE agricultural development of Mexico is of vital interest to the Mexican Government at the present time. The country having been in a state of war for the past ten years, thousands of acres of very fertile soil, formerly under cultivation, has been allowed to lie idle. Also there are thousands of acres which have never been cultivated that would produce wonderful crops. These lands can be found in all parts of the nation.

The land that is being tilled gives large crops under the most adverse conditions, as the use of modern farming implements is rare. With better equipment the fertile soil would produce tremendous yields.

The question of introducing more modern farming equipment into Mexico is a subject which is to be discussed at the meeting of the Federated Chamber of Commerce in Mexico City beginning June 26, 1921, and it is a topic in which the entire Mexican nation is deeply interested.

There are hundreds of idle men in Mexico at present, a situation brought about by various conditions, and the National Government is trying to devise a plan by which these men may be given work and the thousands of acres now tilled.

President Obregon and his cabinet realize that agriculture is the backbone of the nation and are willing to use all their power to encourage more intensive tilling of Mexican soil. In order to accomplish this big undertaking in the quickest and most feasible way, it is the desire of the Mexican Government to hold an exhibition and demonstration of agricultural machinery and equipment in the City of Mexico some time this year. They believe that by employing this means of showing modern machinery to the people, and teaching them how to use it, the Government will encourage purchase by those financially able to buy, and will arouse in others the desire to secure better equipment.

## Education Necessary

THIS project is being taken up now with the various Tractor and Implement Associations and when this fact becomes known to the American manufacturers of agricultural equipment, no doubt they will see the tremendous opportunity offered them to extend their foreign trade, and immediately will offer their co-operation.

Realizing also, that education is the first requisite in promoting agriculture, the Mexican Government is preparing to inaugurate a series of tractor and implement short courses in different parts of the country. Also, the agricultural college in Mexico City will receive a stimulus under the Obregon Administration; and it is planned further to establish two or more branches of this institution in important farming districts.

If the reader will picture a pair of oxen, hitched to a small plow having only one handle, some idea will be gained as to the depth the soil is plowed and the time required to do the work. At harvest time hundreds of acres of wheat are harvested with hand scythes and the threshing is done by animals tramping the grain. These antiquated practices are being carried on by our next-door neighbor!

### ANTIQUATED METHODS

Visualize, if you will, the needs of Mexico by taking a mental trip over our modern American farms, where you will find in common use, harrows, seeding machines, harvesters, threshing machinery, silos, pumps, windmills, incubators, brooders and a hundred other necessary implements and types of equipment. Then consider what is needed to bring the vast area in Mexico up to the perfection the American farmer has attained.

There is one thing not to be overlooked, however. Although Mexico is behind in farming methods, it is because the people have been in a state of war for the past ten years and have been without funds; not because they lack the desire for something better.

The people of the Republic on the whole are courteous and hospitable. The higher classes are well read, and most of them speak English, having been educated in the United States. The laboring man, or peon, is intelligent and learns in a short time. With the proper instructions he soon would learn how to handle any kind of machinery.

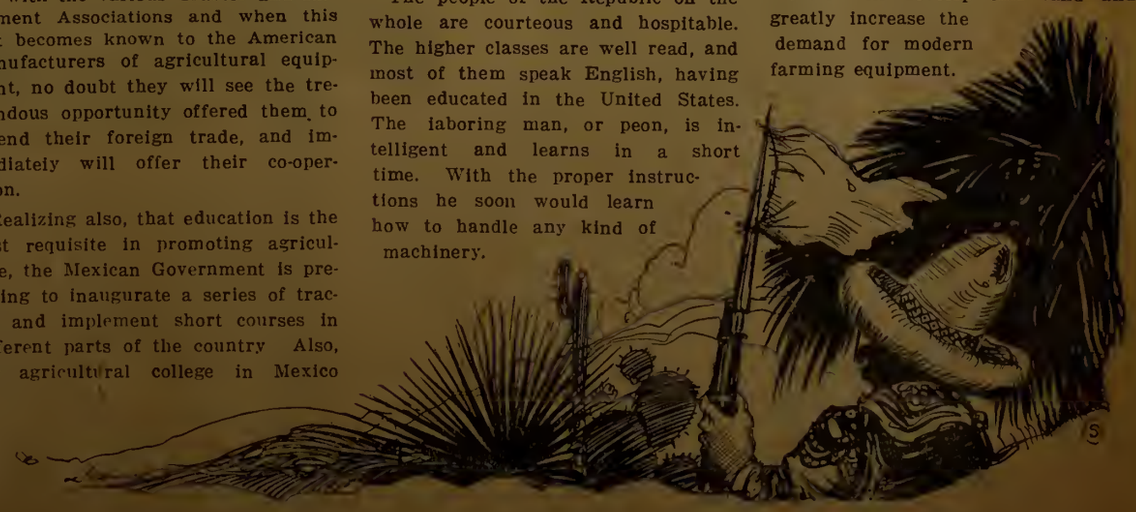
As to paying for the machinery, information has been received through one of the officials of the Government that the banks of Mexico were in a position to handle paper for farming equipment. Banking conditions, too, will improve no doubt in a short time. Only recently a large banking institution connected with the National Government opened its doors in Mexico City, while fourteen others opened in various parts of the Republic.

### GOOD LAND AVAILABLE

Sugar is the basis of a large industry on the West coast, several large factories already being established. Tomatoes also have become an important product, the crop ripening at a time when prices are high in the United States. Corn, wheat, garbanzos and cotton are extensively raised. And it may be of interest to American cotton growers to know that while most of them lost money on the cotton crop this year, the Mexican farmers made money and marketed practically the entire crop in their own country. Tobacco and coffee are grown extensively in certain parts.

Around Mexico City the maguey is raised on a large scale. It requires from six to twelve years to reach maturity—the time varying according to the fertility of the soil and the amount of cultivation it receives. Pulque, an intoxicating drink, is made from the honey-water taken from the plant.

Good land can be acquired in all parts of the Republic, and the price varies according to the state of cultivation. There is no doubt that in the event of the American Government's recognition of the present Mexican Government, there will be a big influx of American people into Mexico, whose capital will develop this land and greatly increase the demand for modern farming equipment.



# Peach Curl-Leaf—Control Experiments Concluded With Valuable and Interesting Results

By George P. Weldon

CONTRIBUTING HORTICULTURAL EDITOR OF ORCHARD AND FARM
POMOLOGIST CHAFFEY JUNIOR COLLEGE OF AGRICULTURE

THE prevalence and severity in peach orchards of the condition known as curl-leaf has created a widespread interest in control measures.

The disease is due to a fungous organism, *Exoascus deformans*, which causes disastrous curling or blistering of the foliage.

George P. Weldon

While this discussion may seem untimely, because nothing more can be done at this season towards control of the disease, perhaps a few facts may be driven home more effectively than at any other time. For just now many orchards are suffering; and many growers are wondering whether the spray they used was faulty or the general practice of spraying as recommended by those who should know, altogether wrong.

There has been great variance of opinion as to the relative value of dry sulphur and the liquid materials. This fact, and the importance of the subject, led the writer to plan an experiment in the Chaffey Union District (Ontario, San Bernardino County). The able assistance of H. R. Stanford, Plant Pathologist of the Chaffey Junior College of Agriculture, meant much towards satisfactory completion of the experiment.

## SOME VARIETIES RESISTANT

No season passes without numerous inquiries as to what can be done to control curl-leaf after its presence is detected in the orchard. The same answer—"Too late"—always must be given, and strange to say, it is not only new growers in the business who are responsible for some of these inquiries.

A careful statement of the results of the experiment recorded in this article, it is hoped, will give many readers the cue to successful control, so that next season their orchards may be free from a disease which sometimes is responsible for complete crop failure.

Varietal resistance to the leaf-curl fungus as brought out in this experiment is something that peach growers may find it profitable to take into consideration. There are varieties which are highly resistant if not immune to this disease, and a knowledge of those which can be expected to develop the disease under normal conditions and which may not, is valuable in determining the need of spraying.

*An examination of trees now will aid in establishing varietal susceptibility.*

Will dry lime sulphur control curl-leaf as well as a standard liquid solution? This was the principal question to be answered. It was necessary, therefore, to plan the work in such a way that the minimum quantity of each spray that would be effective could be determined.

## RESULT OF ANALYSIS

On a cost basis, two pounds of dry lime sulphur is practically the equivalent of one gallon of liquid lime sulphur (comparing the brands used in our experiments). In other words, the regular dormant strength of the liquid preparation, viz: one gallon to 10 gallons of water, costs the same amount as a solution of the dry material when two pounds are used to 10 gallons of water.

Analysis of the two materials, made by George P. Gray of the Division of Chemistry, State Department of Agriculture, shows that there is more than twice as much sulphur in one gallon of a standard liquid lime sulphur solution as in two pounds of the dry.

Judging the sprays, therefore, by sulphur content alone, one has not felt justified in recommending the use of a spray containing only half as much sulphur as could be purchased at the same cost in another form. On the other hand, the manufacturers of the dry compound have claimed that it possessed equal value as a spray because of organic material used in its preparation. An analysis shows this organic material to be sugar.

With these facts clearly in mind, the experiment was planned as follows: A block of peach trees of the Sims variety (very susceptible to leaf curl) was selected. These trees, while sprayed last season, afterwards developed very serious leaf curl infection, probably due to lack of thoroughness in the treatment.

There were 236 trees in the block, which was divided into six sections. Probably one-half dozen Phillips Cling (slightly susceptible variety) and one Salway (highly resistant variety) were scattered throughout the block of Sims trees. Two Sims and one Phillips were left *without spraying*, in one part of the block, and two Sims and one Salway in another part. Since the attempt was to be made to find the minimum strength of the dry material which would control, dilutions in each experiment were as follows:

Experiment No. 1. Dry lime sulfur, 2 pounds to 10 gallons of water, 51 Sims trees treated.

Experiment No. 2 Liquid lime sulfur, 1 gallon to 10 gallons of water; 50 Sims trees treated.

Experiment No. 3: Dry lime sulfur, 2 pounds to 20 gallons of water, 30 Sims trees treated.

Experiment No. 4. Liquid lime sulfur, 1 gallon to 20 gallons of water; 35 Sims trees treated.

Experiment No. 5: Dry lime sulfur, 2 pounds to 30 gallons of water, 34 Sims trees treated.

Experiment No. 6: Liquid lime sulfur, 1 gallon to 30 gallons of water; 36 Sims trees treated.

From the strengths of the materials used, it may be seen that the statement of the manufacturers of the dry lime sulfur to the effect that two gallons of dry is the equivalent in control value of one gallon of the liquid was accepted, and in the case of all experiments from full strength to one-third strength the same ratio was maintained.

## EARLY SPRAYING BEST

Spraying was done on February 21 and 22. At this time the trees were practically one-half in bloom, but no foliage was out. This was considered to be a little late for the best results in curl-leaf control, and the perfect control accomplished under advanced conditions really was unexpected.

Still another interesting thing should be mentioned in connection with experiments 1 and 2. On the day when this spraying was done there was a light drizzle of rain. Since this condition prevailed throughout the entire time when the two tanks were applied, results are comparable.

The work was accomplished with a power sprayer, giving a pressure of 200 pounds with two spray-gun nozzles. Approximately three gallons of spray on an average was applied to each tree. The age of the trees was seven years.

In experiments 1 and 2 perfect commercial control resulted. An occasional twig here and there showed a slight curl-leaf, but no more than would be expected to develop because of the impossibility of spraying tree after tree without missing a little now and then. Absolutely no difference could be seen between the trees sprayed with dry and with liquid solutions.

Experiments 3 and 4 developed a small amount of curl leaf, possibly as much as 20 per cent of the foliage being infected. But again no difference could be detected between the trees sprayed with dry and with liquid solutions.

Experiments 5 and 6 showed no difference between the trees sprayed with the dry and with liquid solutions, but the infection of curl leaf was estimated as about 30 per cent of the foliage.

All check trees of the Sims variety developed very close to 100 per cent curl leaf infection. The Phillips check tree had possibly 50 per cent infection, while the Salway showed only a trace of curl-leaf, but a heavy attack of peach blight (*Coryneum beijerenckii*).

If the fungicidal value of the dry lime sulfur is dependent upon the sulfur content alone, about the same results should have been obtained from experiments 1 and 4, for the amount of sulfur in either case is about the same, yet, while the one controlled perfectly, the other did not. This experiment gave no justification for recommending either the dry or the liquid material as being superior to the other.

Such positive results in the absolute control of peach leaf curl were attained that fruit growers throughout the Chaffey Union and adjacent districts have been urged to view the results for themselves. Some fifty have taken advantage of the opportunity.

Failure to control the disease may be due to delay in spraying until after the trees have bloomed, or it may be due to slighting the work. A thorough drenching with full dormant strength lime sulfur, *dry or liquid* in the early spring as buds are swelling will control the disease perfectly.

While results were secured by using a late application, the writer would not recommend the practice of waiting too long, as there are more chances for failure from the late than the early spring application.

### *A Striking Contrast*

***BELOW are shown curled leaves, unsprayed, taken from check trees of Sims variety. Compare these with the normal leaves, sprayed with lime-sulfur (dry), two pounds to ten gallons of water. Both the twigs illustrated are typical.***

## Questions Answered

CAN you tell me what to do for a gumming of my peach trees? The gum is of all colors from transparent to red or brown.—J. W. Mason, Los Angeles.

**Reply by George P. Weldon**

All the stone fruits are subject to the exudation of sap which hardens on the outside causing the gumming described in your letter. As there are a number of different reasons for this disease it would be difficult to diagnose your trouble without knowing something about the care and condition of the orchard. I would suggest that you get in touch with Commissioner Horticultural Commissioner M. J. Ryan, Hall of Records, Los Angeles.

There is a disease known as Bacterial Gummosis that attacks almost all stone fruits particularly the apricot. This disease causes the gumming and one of the characteristics of the gum is its reddish or amber color. The only remedy is to remove infected portions of the tree, employing the method used in the case of pear blight.

There is also a possibility that trouble may exist in the roots of the tree. Sometimes in the spring of the year a condition called sour sap develops. This is found usually where the soil is rather heavy and a hard pan layer retains the moisture too long, thus affecting the roots.

CAN you tell me what to do for a little worm in my currant bushes?—Mrs. G. H. F., Trinity, California.

**Reply by George P. Weldon**

The insect injuring your currants undoubtedly is the currant fruit fly, a serious pest of this fruit which occurs in the San Francisco Bay region. The adult of this insect belongs to the same family as the dreaded Mediterranean fruit fly, which has necessitated a California quarantine against all fruits and vegetables from the Hawaiian Islands and other places where this insect occurs.

There is no spray that will control the currant fly. Cultivation around the currant bushes early in the spring for the purpose of exposing to the bad unfavorable weather conditions the pupae which hibernate in the soil is possibly the best remedy. Protection of bushes from the flies by screening in early spring has been suggested.

# PRACTICAL POINTERS IN FEW WORDS FOR BUSY FARMERS

**How to Control Flies**—The flies which infest any farmstead usually are produced on that farm. Flies prefer horse manure for laying their eggs, and the eggs can be prevented from hatching by applying ordinary powdered borax to their breeding places. Specialists of the United States Department of Agriculture have discovered that ten ounces of powdered borax to eight bushels of manure is sufficient to kill the maggots and prevent all the flies from developing.

In the case of stables, the method is to sprinkle the borax in the quantities given above by means of a flour sifter or sieve. Most of the borax should be applied around the outer edge of the pile, as that is where the maggots congregate. The manure should be sprinkled with two or three gallons of water to eight bushels of manure. This does not affect the value of the manure as a fertilizer.

In the case of garbage, where flies also breed, the borax should be sifted in the dry form, in the proportion of two ounces to the can of garbage. This will not impair the value of the garbage as a food for hogs, as borax in these small proportions is absolutely harmless.

It is practically impossible entirely to eliminate flies on the farm, because they find so many places in which to breed, but a little attention to this important matter will be an effective aid in controling the fly nuisance. If stables are cleaned thoroughly and all accumulated manure is spread upon the fields, there will be a noticeable reduction in the fly population around the farm.

**Mildew of Leather Goods**—The best preventive of mildew on harness and other leather goods is fresh, dry air. Any leather article is liable to be affected if kept in a warm, damp, dark place, such as a closet, cellar or stable. Mildew may change the color of leather, thus injuring its appearance and lowering its sales value. Also, if allowed to remain long, it may seriously reduce the serviceability. When mildew develops it should be washed off with soap and warm water, the article being well dried afterwards. Special preparations are unnecessary for preventing the growth of mildew. These simple measures will suffice.

**Digestibility of Poultry Feeds**—M. A. Schofield, president and general manager of the P. C. A. Milling Association of Los Angeles, says: "Of utmost importance is the power of the hen to use the feed we give her. That is why all laboratory reports should be tried out in the poultry yard. Tests for digestibility in the laboratory are interesting, but not half so conclusive as a test of results from actually feeding to the hen. Some forms of protein are not available, others partly available, and some forms of carbo-hydrates are so constituted that the strain on the hen is decidedly too great when she is compelled to get her sustenance from them. A man, a pig and a hen obtain but little nourishment from crude fiber. Some forms of protein are merely irritants, some are waste and some are over 90 per cent available. Myo-proteins, those derived from the muscles of animals, are considered to be at least ten times as valuable as the proteins found in gelatinoids, or those which are related to glue."

**Suggestion to Travelers**—If for any reason you are unable to use a Pullman reservation, be sure to notify the agent if possible before the departure of the train or at least as soon thereafter as possible in order that he may offer the space for resale. Otherwise the Pullman company will refuse to make refund, being protected in their position by the regulations of the Interstate Commerce Commission. They are [illegible] to refuse refund even [illegible] spaces in the sleeper [illegible] during the trip. The [illegible] is missed un- [illegible] to make no dif- [illegible]

**New Ideas in Poultry Feeding**—The feeding of oats is recommended by T. F. Derrick of Los Angeles as the best "base" for poultry ration. Economy results in feeding mash composed of whole grain, ground to suit, he asserts. He advocates also the use of raw meat instead of tankage or dried scraps, and also recommends raw egg, mixed with mash, as the most economical protein food for poultry of all ages. For green stuff, he prefers carrots and cow peas with alfalfa, because they are rich in iron and lime, he says. Such feeds, with plenty of clean drinking water, warmed in cold weather, assures success, providing breeding and environment are favorable, concludes Mr. Derrick.

**Methods of Eradicating Cockleburs**—The cocklebur is an annoying and harmful annual weed, of which there are many types. Animals often are injured by eating the burs, while the herbage of the young plants frequently causes bloating of young pigs. Land infested with cockleburs should be planted to a cultivated crop, such as corn, and the rows thoroughly hoed after each cultivation to prevent the production of seed by any plants that may have escaped the implement. In grain fields, patches of these weeds that spring up after the crop has been removed should be destroyed by plowing. Buckwheat, soy beans and clover, because of their shading qualities, sometimes smother the burs. Mowing and burning the plants is a good method to use in heavily infested areas. A single plant, growing in a fence corner, may infest large surrounding areas. Success has been obtained by spraying early in the spring with a solution of iron sulphate—two pounds per gallon of water.

**Laying Hens Need Exercise**—Occasionally the poultryman loses sight of the necessity for exercise in the flock. Hens may not exert themselves sufficiently scratching for feed in the litter, unless the hay, straw, fodder or other material is spread at a depth of not less than four inches and renewed frequently. In addition to scattering grain in the litter, it is recommended that cabbage heads, beets, mangels, etc., be suspended or nailed to the wall at a distance above the floor so that the fowls must jump in order to reach them. Intensive poultrying requires close attention to the problem of exercise, which of course, is met with in nearly all the poultry plants during the winter months. The greater thrift of hens kept on free range is sufficient evidence of the importance of this factor.

**New Citrus By-Products**—Of particular interest to the citrus industry at this time, when chaotic conditions prevail, especially in the lemon market, is the announcement of a new outlet for cull fruit, operated under the name of Granite Springs Estates, Inc., a large organization with a Pacific Coast branch at 1101 Mateo street, Los Angeles. The fruit will be used in manufacturing a powdered (dehydrated) orange juice and lemon juice. According to officials of the new company, they hold a contract for 5000 pounds a day of this material to be used in the making of beverages and other products. The home plant in New York is said to occupy 120 acres. George H. Proctor is president, J. S. King vice president, George H. Proctor Jr., secretary and treasurer. The general manager of the West Coast division is Seth A. Burrows, who has had wide experience in dehydration and the manufacture of special equipment for this process. The factory will operate, it is announced, under the Ames patents, issued April 5, 1921.

**Sweet Potatoes in the Limelight**—All indications point to tremendous development of the sweet potato industry. Improved methods of drying, canning, processing and storage will provide a year 'round market for a formerly seasonal crop. In California, one concern is contracting for a large acreage of "sweets" to be cured by a patented process which draws the sugar to the outer skin, sealing the contents and making it possible to keep and ship the tubers safely. In the south, growers are preparing to can and advertise extensively the famous "yams." In Georgia, sweet potato syrup is being manufactured successfully. A large cotton oil mill is planning to take the initiative in developing a market for the newly discovered by-product which is said to be superior for many purposes.

**Successful Rat Poisoning**—Barium Carbonate is recommended as the best poison for exterminating rats. It is tasteless, odorless and obtainable at most drug stores. Combined in the proportion of one part poison to four parts food, it produces remarkable results when mixed with meats, vegetables and cereals. A variety of these foods, however, should be used as the well fed rat is finicky and it is necessary to cater to his appetite. A good plan is to put a teaspoonful of each variety on a strip of paper or piece of board so that the rat traveling along his runway finds a three course meal, part of which at least, is likely to appeal to him, with the result that the rat population is reduced by one.

## Ben Gonnadooit Says

*I HAVE been givin' consid'ble time and thought here of late to problems of gov'ment. I think it's every man's duty to work fer cleaner politics and take a int'rest in public affairs. I have just writ a letter t' Pres'dent Harding, layin' before him a plan fer financing pore but deservin' farmers like me by lendin' 'em money without int'rest, and fer long periods o' time out o' the public treasury.*

*All th' local bankers has turned ag'in me. They seem t' have plenty o' money, howsumever, t' loan my more successful neighbors. Therefore I don't see no hope fer a strugglin' young feller in my circumstances onless th' gov'ment takes a hand.*

*I've give so much time to studyin' this subject that I ain't even had a chance t' mow th' weeds on my place, nor mend th' fences. An' I explained this t' my banker, too, but he only said he p'ferred t' make loans t' men with enough civic pride t' keep up their farms.*

*Is it any wonder I'm discouraged? When I do try t' be public spirited, take part in securin' better gov'ment, an' generally devote my talent t' public uplift, that's all th' thanks I get fer it. I reckon a man is better off t' be selfish an' play th' game fer his own ends.*

*Farmin' and fishin' takes up all my time, an' I've found I can't do public work without givin' up one or 'tother.—BEN GONNADOOIT.*

**Blasting Boulders**—That it costs less to blast big boulders than stumps is the contention of a farmer who has cleared large tracts of land. Boulders measuring four to six feet in diameter were broken up with nineteen pounds of dynamite. "Mud capping" is the easiest method, but costs more, as a greater amount of powder is required. He suggests drilling a hole into the boulder, say one-half or two-thirds through it with an ordinary rock drill. Then load the charge of powder in the hole and tamp with moist clay. The boulder thus may be broken into pieces that can be blown into bits with one-half to one pound of dynamite. If the boulder is imbedded in the ground, he says, the earth should be dug away from the sides or the stone should be thrown out on top of the ground with a preliminary charge loaded in a "snake hole" or small tunnel under it.

**Time to Preserve Eggs**—This is not too early to commence packing eggs for use next winter. Place the eggs in water glass when absolutely fresh. Do not wash the eggs, but select those with clean shells. Water glass can be bought by the quart from any druggist or poultry supply house. It is a pale, odorless syrupy liquid. Dilute one part water glass to nine parts water which has been boiled and allowed to cool. Earthenware crocks or jars are the best containers. A six gallon container will hold 18 dozen eggs, requiring about 11 quarts of solution. Half fill the container with the water glass, put the eggs in it and add more from day to day as cooled until container is filled. Be sure eggs are covered with about two inches of the solution. Cover tightly, using wax paper under the cover, and inspect every two or three months to see that the water has not evaporated. Remove the eggs from the solution as needed, rinsing before use. Before boiling stored eggs, make a tiny hole in the large end of each shell with a needle to prevent cracking.

**Co-operative Ranching**—A correspondent who has had much experience in co-operative power farming, formulates the following rules, essential to success: (1) Place financial matters on a sound basis at beginning of organization; (2) put the entire management in the hands of an experienced man, and give him free rein without handicaps, or the necessity of looking after minor operations; (3) arrange sufficient facilities for overhauling and repair work, to reduce time and expense to the mimimum; (4) require and authorize high standards of production, selecting labor that will be capable for each class of work. Have a thorough understanding as to standards of labor and all operations; (5) Each party to such an organization must take interest in the work and be able to give intelligent help or constructive criticism where it will get results. No co-operative organization is intended to be of especial benefit to any one member, but should be of equal value to all.

**Horses and Harness**—A progressive farmer who has been giving considerable attention to details of management attaches great importance to the selection of the proper horses and harness for the work at hand. Figuring on the basis of acres per day, he found that he could better afford to dispose of a horse which had a slight physical ailment, the dirrefence in the cost between the selling price and the price of a new, sound horse soon being absorbed in a greater amount of labor accomplished. Also he has discontinued the use of a light horse on heavy work, where the animal constantly over-taxes without moving the load economically. Another false economy disclosed by his investigations was the use of light harness which he was able to buy at an apparent saving. A heavier set of harness purchased at the same time at slightly higher cost lasted nearly twice as long and prevented delays from breakage

# Increasing Clatsop County Cream Checks

*HOW a youthful leader is showing Oregon farmers the value of modern methods and putting his theories into successful practice. A true-to-life story about a wonderful land of berries and cream.*

By O. H. Barnhill

CONTRIBUTING EDITOR FOR THE PACIFIC NORTHWEST

COMING from the cold Atlantic coast, where spring is wont to linger in the lap of winter until it becomes a public scandal, a company of fur traders arrived in Oregon on the 22nd day of March more than 100 years ago.

The pioneers, after their long trip around the Horn marveled at the green grass, budding trees and early flowers. They founded the post of Astoria, naming it after John Jacob Astor, who had sent them thither. And thus came into being the oldest city in the Northwest.

Probably most of the readers of ORCHARD and FARM know of Astoria, but few, no doubt, think of it as the county seat of Clatsop County, which lies in the extreme northwest corner of Oregon.

"Surely, here is an earthly paradise," exclaimed Astor's men. It was, however, many years before the early settlers turned their attention to agriculture, since it was much easier to trap or trade for furs than to till the soil. When furs became scarce, the fishing industry took precedence. Every year from May until August millions of the finest fish in the world, the royal red Chinook salmon, enter the mouth of the Columbia on their way to distant spawning grounds.

## DAIRYING IS INAUGURATED

But while fish make excellent eating they do not constitute a complete diet. In searching for other edibles, the fishermen found many varieties of berries growing wild. Still, the berry industry did not become at once important.

Since the winters were mild, the summers cool, rainfall abundant and the soil fertile and much of it sub-irrigated, the would-be farmers figured that their best bet was dairying. Their descendants still are of the same opinion. The grass, like most of the trees, is of the evergreen variety, never being covered with snow and ice nor withered by summer's drought nor wintry winds.

Lumbering next became the biggest industry, but not all the Clatsoppers—if it be safe to call them such—were turned away from agriculture by the development of other resources and the growth of the port of Astoria. J. S. Dellinger, the enterprising editor of the Morning Astorian, is of the opinion that 1000 acres of berries would be worth more to the county than all the port business combined.

## BIG CRANBERRY PROFITS

Dellinger is a big berry booster, having an eighteen-acre cranberry bog which last year produced a thousand barrels of crimson fruit worth anywhere from $15,000 to $20,000 for sauce timber. (Prices were then about double those of normal times.)

Food production, in fact, is becoming increasingly important. J. Fred Larson, managing director of the Overseas Company, exporters and importers, calls attention to the fact that 211 ships provisioned in the Columbia River last year, each taking on an average of $40,000 worth of supplies. Of course, this was not all food, but a good share of it was. In addition to being one of the best local markets in the State for farm products, Astoria offers unparalleled shipping facilities. What this means to the farmer is well illustrated by the fact that a recent shipment of Oregon apples was made via the Panama Canal direct to London at a profit of $1 per box, compared to $1.92 and $2.15 overland via New York.

The average lowlands vary in value from $150 to $400 an acre according to nature and location. Bog land suitable for cranberry culture, can be had at around $150 per acre, but it requires nearly $1000 per acre additional to convert them into producing plantations.

The uplands comprise most of the logged-off sections of the county and are similar to the beach lands in responsiveness to cultivation and clearing. Prices range from $30 to $100 an acre. The cost of clearing is high, perhaps $200 per acre, although excellent pasture lands can be made without removing the stumps.

## ACTIVE COUNTY AGENT

E. W. McMindes, the Clatsop County agent, is a live and able official, as a cat on a hot tin roof and full of enthusiasm for his job. By "flivver" and by boat, a-foot and a-saddle, the peripatetic agricultural missionary goes in and out among the farming folk, organizing a grange here, organizing a community farm bureau there, helping individuals to solve their problems, urging them to co-ordinate their interests in one big organization.

"The farmers here are good operators," asserts McMindes. "We used to have a county dairy association with two creameries. Now 80 per cent of the dairymen of the county belong to the Dairymen's Union, which has taken over the creameries and built two cheese factories. There is a strong sentiment here in favor of the farm bureau, which we are organizing just as fast as we can.

## CO-OPERATION SWELLS RETURNS

"While milk producers in other sections are complaining of low prices, the returns received here are the highest since November (written in May—Ed.), being $3.90 for 3.8 milk. Compare this with the Seattle price of $1.70. Of course, cream did not bring such a high price, but those who sold cream got the same price as those who sold whole milk, the high price of the latter helping pull up the low price of the former. That is real co-operation.

"There are 5000 cows in Clatsop County, which certainly is a dairyman's paradise. Holsteins and Guernseys are the leading breeds. During the month of January there were 2000 cows being officially tested in the county, a greater number than in any other county in the State. The average milk production per cow was 6000 pounds and the average butterfat 300 pounds. Our nearest competitor showed only 20 pounds of fat and 416 pounds of milk. We had more cows producing over forty pounds than any other county—three times as many as the average. Nels Rasmussen has six cows which gave sixty pounds apiece."

Going out to the experiment station the writer entered the barn and found a young Scandinavian in flannel shirt

(Continued on Page 24)

ABOVE Clatsop Oats and Vetch, 14 Tons Per Acre

LEFT Pigs Grow Fat in Clatsop Clover

CONTENTED COWS Guernsey and Dutch Belted Beauties on a Modern Clatsop County Dairy Farm

# Tractors, Hills and Almonds

*THE EDITOR here transcribes his impressions of hillside power farming and big-scale almond production, as gained during a recent interesting trip through the Paso Robles district, San Luis Obispo County. Although soil and horticultural authorities have pronounced conditions here ideal for almond production, it was not until the advent of the tractor that extensive enterprises were launched in these picturesquely rolling hills.*

By James C. Knollin

HAS the tractor a place on hilly land? This question so startled George Laing, general superintendent for the Associated Almond Growers of Paso Robles, that he replied to taking the interrogator upon a tour of observation.

That any one should question the ability of the iron horse as a hill climber came as a distinct shock to the successful tiller of young mountains. Five ball-tread, track-laying, hill-eating, gravity-conquering machines were disclosed to us before we had finished our trip. And each one was negotiating side hills and heavy grades as though the work were child's play.

Mr Laing has under his jurisdiction some 12,000 acres of almond land. He was persuaded three years ago by the Associated Almond Growers, a colonization syndicate, to set out 150 acres of trees. The sales department, however, went so rapidly ahead of the field department that he planted the first year 1000 acres instead of 150. During the second year he set out 3000 acres more, the operations of the company being limited only by inability to secure sufficient good nursery stock, to employ adequate help and to gather together the necessary equipment for more rapid extension.

A SUCCESSFUL PLAN

The big idea of the Associated Almond Growers, as may be inferred from the above figures, "took" well. The plan is to sell almond land to the farmer large investor, plant and care for the trees until they reach maturity, the active part of the payment for land from the crops, thus making the proposition a co-operative deal between seller and buyer.

My journey through the beautiful district (San Luis Obispo) was made possible through the courtesy of Booth Brothers, Paso Robles tractor distributors, who have much to do with the introduction of farming in this hilly orchard country. We saw tractors negotiating 40 per cent grades with heavy harrows set at a business-like angle. We saw also large machines perilously as they roared down the hills. Yet none, we learned, had overturned and few had remained unconquered.

It seems to be the natural almond country, said Mr. Laing, and almond lines among the hills are to be found in every country "The trees are made to order" for almond production. During the fall, when the hull breaks, the weather is so dry that the nuts may be packed without bleaching, and at other seasons weather conditions appear to be especially favorable."

LAND NOT IRRIGATED

No irrigation is practiced. The annual rainfall is from fifteen to thirty-six inches. The leaders in the industry are working constantly towards the development of an ideal system of cultivation that will bring about maximum moisture conservation. But we found no one who recorded drought damage to almond trees. The soil seems to have the faculty of retaining moisture and only a light mulch is necessary in order to reduce evaporation to the minimum.

Subsoiling is resorted to bi-annually on the Associated Almond Growers' property. For this work Mr. Laing has developed a home-made implement which has proved very effective. The teeth, or knives, were forged to order and attached to the frame of an old four-bottom gang plow, this interesting instrument being drawn by means of a tractor. This device is used close up to the rows of young trees, while at the center between the rows is operated a heavy, single-knife subsoiler penetrating to a greater depth.

The young orchards are clean-cultivated. Mr. Laing, however, points out the desirability of maintaining the natural cover crops which easily are exterminated by constant cultivation, to the detriment of the soil and with added expense to the owners, who must plant tame cover crops in their stead.

TRACTOR CONTRACT WORK

Some of the tractor work on the ranch is sublet to private operators. One young man pointed out by Mr. Booth had paid for two expensive tractors in less than two seasons, while others had bought their machines on time and had soon become enthusiastic owners.

The ranch "fleet," however, is under the watchful eye of a superintendent who employs and is responsible for the drivers, and whose duty is to keep all machines in good condition and on the job.

His policy is to employ an inexperienced driver, preferably a farmer, who understands the proper use of the implements and is not concerned with repairing and adjusting his machine. The latter work is left entirely to the "trouble shooter" and repair man, who has a shop well equipped for the work.

"We had much rather have a good farmer on the driver's seat than a would-be mechanic who thinks he must stop and adjust the carburetor every few minutes," asserted the tractor foreman. "The cost of operation on the hill land has been about $8 a day for fuel, the machines covering fifteen to eighteen acres per day, as compared with twenty acres on level land."

Who are the men who have visualized this magnificent industry in a beautiful district? Albert MacRae, president, is actively at the head of the organization; Fred G. Jackson, vice president; William Nicholson, secretary and treasurer; Everett A. Fleming and John I. Oswald, directors.

EACH DEPARTMENT ORGANIZED

Each department is thoroughly organized and has at its head a specially trained leader. The factors in the working force include horticulturists, general superintendent, engineers and various field foremen, in addition to the land sales organization.

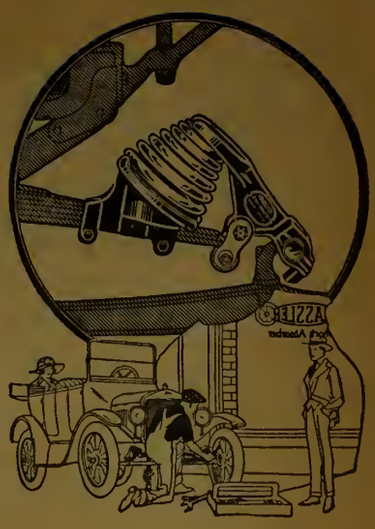
In conjunction with the California Almond Growers' Association, orchardists in the Paso Robles district are strong for co-operative marketing and are looking ahead towards the greatly increased production that will result when all the young trees are in bearing.

"We do not fear over-production of almonds, however," said one of the enthusiasts whom we encountered. "Prices may be lower than we have been receiving, but I can afford to accept less and still make a good profit on my investment. The almond is regarded largely as a confection. It is our intention to popularize it as a food. We will all be better off then when the nuts can be produced in larger quantities and sold at a lower price."

Regretfully, then, we left the rolling hills, convinced that here we had found co-operation, living conditions, almonds, hospitality and tractors at their best.

Hillside Tillage

Above—A 25-30 tractor handling double-disc on 20 per cent slope. At right—Almond tree in bloom in Paso Robles district. Below—Tractor going "straight up," cultivating between young trees not far from ranch of Paderewski, famous pianist and recently Premier of Poland. (Mr. Paderewski at present is on his almond ranch recuperating from the strain of his patriotic work for his mother country.)

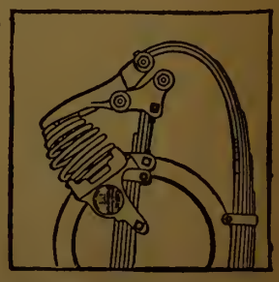



## "Hasslers" without tying up your Ford

NOTHING complicated about Hassler Shock Absorbers. Nothing to change about the car! Any garage man can apply them — easily — quickly — correctly!

Think of such a small amount of time—and such a small expense — securing for you a saving of one-third of your tire and up-keep expense, that will make your car last one-third longer! They protect the car against the destructive bumps and shocks — they eliminate vibration.

Try Hassler Shock Absorbers—at our risk—for 10 days. You can get them for any Ford model — and also the 1-ton Truck. Write us if you do not know your dealer.



*This illustrates the model of Hasslers now made for the Dodge Brothers Car. They give luxurious comfort and smart appearance. Ask your Dodge dealer about them.*

HASSLER
TRADE MARK REGISTERED
Shock Absorbers
PATENTED

Hassler Pacific Co.,

1451 Van Ness Ave.,
San Francisco, Cal.
Los Angeles, Portland, Seattle

# The Runt

## A SHORT STORY

by Albert Constant Jameson

# An Open Letter to Every Fruit Grower and to the Members of the Organized Branches of the Industry in Particular

NOT OVER-PRODUCTION — BUT UNDER CONSUMPTION IS WHAT KILLS YOUR BUSINESS TODAY.

In the past the fruit industry has experienced in cycles, seasons of depression—never from over-production, but always from under-consumption, without any constructive effort having been put forth, except upon the part of one or two individual organizations, to remedy the condition.

EACH OF THESE PERIODS OF DEPRESSION HAS CAUSED YOU LOSSES MANY TIMES MORE THAN THE COST OF THE PLAN I AM PROPOSING.

If you are a grower of fruit and nuts, and are not affiliated with some one of the organized branches of your industry, YOU SHOULD CONNECT UP AT ONCE.

In my former letter I announced to you my plan of placing in the hands of every one of the fifteen million American housewives "THE STORY OF CALIFORNIA FRUIT FOODS," a book so gotten up as to be a gift prized by every recipient, so cleverly edited as to be intensely interesting, with recipes so compiled by the world's best culinary talent—simple—wholesome—economical—labor-saving, as to be an indispensable necessity to her.

The American housewife is the key to the consumption of your fruit products. She has a romantic interest in California and your products. She is confronted each day with the problem of providing a wholesome, attractive and economical diet for her household. The great majority of housewives but rarely use your products. She is ready and waiting at your door, if you will but place "THE STORY OF CALIFORNIA FRUIT FOODS" within her hands, advising her of their wholesomeness, their attractiveness and their economy in labor and cost.

It will of necessity devolve upon the organized branches of the industry to take the initiative in creating an organization that will put this over.

To put this plan over will require on your part an expenditure of not more than one cent out of every dollar of proceeds from your crop, over a period of three, and, at the most, four years.

The loss to you from the present period of depression in the industry will cost you many times more.

THE ONE ABSOLUTELY INSURES YOUR FUTURE; THE OTHER IS NONE.

I am informed by an advertising expert that the average advertising expenditures of various well known commercial enterprises will average 2½ to 4% of the amount of sales, and in the automobile industry from 3 to 5%, while some of the organized branches of the fruit industry now have an advertising expenditure of from 1 to 1½%, yet the average for the industry will fall short of 1%. The additional expenditure required to put over the "Bergtholdt Plan," together with the continuation of the advertising expenditures now being made by the various branches of the industry, will make a total expenditure for advertising your products of not over 2½%, which is not under the average minimum expenditure employed by every other successful commercial enterprise. The plan I am suggesting will connect your industry up directly with the one individual who absolutely controls the marketing of your product—THE AMERICAN HOUSEWIFE, AND THE RETAILER WHO DISTRIBUTES YOUR PRODUCT.

[illegible] one hundred [illegible] period of four years in putting this plan into effect is by no means an expenditure, but is an absolute necessary investment in your present situation, and you will be repaid in increased proceeds from each year's crop several times the total cost. The value of your orchard property, and of every acre of land in California susceptible of fruit culture, will be automatically enhanced.

Contributions from growers not allied with any of the marketing organizations can be secured in the some proportion that you will pay, by a drive for their support.

This plan will add to the prosperity and wealth of California from Yreka to San Diego, and the aid of every allied industry and of every commercial body of the State also can be secured.

The co-operation of every jobber and every retailer can be secured, not alone to contribute in some portion towards its cost, but to place a copy of "THE STORY OF CALIFORNIA FRUIT FOODS" in the hands of every housewife, under the direction of your organization.

The organization that will put this over will comprise the best brains and executive ability at the command of the industry.

This organization also, while putting this over and directing the distribution of this book through your jobbing and retail channels, will be admirably equipped, and SHOULD FUNCTION IN A MOST VITAL AND HERETOFORE OVERLOOKED PHASE OF THE DISTRIBUTION OF YOUR FRUIT PRODUCTS.

A department of this organization should be created for the purpose of making an expert analysis of the methods of the distribution of your products from your orchard to the ultimate consumer, and under a corps of experts, should function in the capacity of systematically instructing every retailer of your products in the United States how to specialize in the sale of California fruit foods; and should instruct him in methods of intensive modern retail salesmanship; and should devise means and methods that will make every retailer and every retailer's clerk an intelligent salesman of your products, and thus automatically, by increased efficiency eliminate profiteering and other abuses now prevalent.

Systematic effort should be made to induce every retailer to specialize in the sale of California fruit foods and set aside a department for that purpose.

By means of the efforts of this department of aid to the retailer, and jobber, the efficient and intelligent co-operation of these factors will be secured.

"THE STORY OF CALIFORNIA FRUIT FOODS" in the hands of every housewife,—every retailer made an efficient salesman of your product—THIS IS THE "BERGTHOLDT PLAN."

Commendable efforts are now being put forth by most of your organizations in the direct newspaper advertising of your products, but, as your sole reliance for informing the American housewife of the merits of your products and securing her co-operation in their use, I am convinced that you will agree that they fall short and do not reach the majority.

A recent survey of the various publications being used by several of your strongest marketing organizations shows that their advertising efforts are being expended mainly in ten publications, comprising the best of their kind, with a total circulation of 12,673,000.

Among these ten publications used, a number are duplicated to the same subscribers (my own household subscribes to five of them) and it is safe to assume that one out of five of these 12,673,000 subscriptions is duplicated one or more times. This would justify a reduction of twenty per cent to arrive at the total number of individual subscribers. A large proportion of two of these publications, having a subscription of over three million, that is, the Saturday Evening Post and Literary Digest, circulate among other than housewives. Allowing for this deduction and the duplications, it is safe to assume that these ten publications cannot circulate among more than ten million individual housewife subscribers and most likely less.

The back cover page in these publications is the most effective advertising position. It is conceded by experts that, out of every one hundred subscribers, a full page advertisement on the back cover page will be read by a minimum of twenty to a maximum of eighty readers, according to the interest, color and attractiveness of the ad. Therefore, not more than eight million out of ten million subscribers referred to can be expected to ever read a full page ad on the back cover page.

The next choicest location in these publications is the first page following the full page editorial matter of the publication. This is the best inside page, and by advertising experts is rated at seventy-five per cent as efficient as the back cover page. For a full page advertisement on this page, one hundred per cent efficient as to display and subject matter, the highest anticipation of readers would be sixty out of one hundred, or six million readers out of the subscription list of the publications referred to.

Now it is not possible that the various fruit organizations employing these publications should each one always occupy this choicest inside full page. Nor is it possible that, for display and subject matter, the advertisement should always be one hundred per cent efficient; yet, to be conservative, we will allow that the advertisement of each one of your various organizations using these publications is read by six million housewives of the ten million assumed housewife subscribers to these publications.

As there are fifteen million housewives in the United States daily burdened with the problem of providing for their households a dietary wholesome, attractive and economical, each of them equally interested in California and in your product, you will realize that but forty per cent are being reached by these publications, and these only in fragments.

Now I say by all means keep up your newspaper publicity but make it more effective. Place in the hands of every one of the fifteen million American housewives "THE STORY OF CALIFORNIA FRUIT FOODS," edited and compiled absolutely one hundred per cent efficient, and you not only reach and secure the co-operation towards the consumption of your products of those whom you do not now reach, but you make of every one of the six million readers of your advertisements in the publications referred to an interested and intelligent reader of what in your advertisements you have to say.

"THE STORY OF CALIFORNIA FRUIT FOODS" placed in the hands of every housewife, will make your newspaper advertising many times more efficient, while your newspaper advertising can be made to increase the efficiency to every housewife of "THE STORY OF CALIFORNIA FRUIT FOODS." Each will prove indispensable to the other.

"THE STORY OF CALIFORNIA FRUIT FOODS" must be complete. This project must be put over collectively, every branch of the industry participating.

No one branch of the industry of itself will prosper for long alone. The permanence and the success of every individual branch of the fruit industry are dependent altogether upon the prosperity of the whole industry.

The extensive consumption of just oranges and almonds or of just prunes and peaches alone, will not consume the tonnage of these crops that will be consumed of them under an extensive consumption of every fruit product.

While I grant that it is possible for some one of your organizations alone, by efficient distribution and efficient advertising, to successfully distribute their individual product, to a degree that you do not feel the need of co-operating collectively to put this over for the benefit of the fruit industry and your product as well. Such an organization may, for the time being, prove efficient in its individual capacity, but it can hardly be rated as one hundred per cent Californian.

NATURE'S LAW.

"Now this is th Law of the Jungle as old
and as true as the sky;
And the wolf that shall keep it may prosper
But the wolf that shall break it must die.
As the Creeper that circles the tree-trunk,
so the Law runneth forward and back;
For the strength of the Pack is the Wolf,
and the strength of the Wolf is the Pack."
— Kipling.

This plan is being enthusiastically endorsed by growers everywhere, and by prominent factors in the industry.

Had this plan been in operation, many millions would have been saved the California fruit grower during the present period of depression.

Every dollar you put into this plan is not an expenditure but is an investment absolutely imperative and that will be repaid you ten-fold from the proceeds of each year's crop, and one hundred-fold from the assured prosperity of your industry in the future, aside from the enhanced valuation of your orchard acreage.

In the present situation it is imperative that an organization be created and the task begun.

IT WILL BE UP TO THE ORGANIZED BRANCHES OF THE INDUSTRY TO ASSUME THE INITIATIVE IN CREATING THE ORGANIZATION THAT WILL PUT THIS OVER.

It is absolutely up to you and me, as individual fruit growers, to set aside every other consideration and at once directly bring your voice and your influence to bear upon the management of the marketing organization with which you are connected to take action with other organizations to CREATE AN ORGANIZATION THAT WILL PUT THIS OVER.

Your marketing organizations and democratic bodies and your Boards of Directors will follow out your desires.

It is vital to your success as a fruit grower and to mine, that you do your part to this end, and that you persevere—don't let go—keep your shoulder to the wheel. I am doing mine. Your success and mine depend upon this project being put under way at once.

J. E. Bergtholdt
Secy and Mgr.

**Silva-Bergtholdt Company,**
**Newcastle, Calif.**

# EDITORIAL DEPARTMENT

## Timely Topics among Farm Folk

### Transportational Suicide

YES, the phrase is coined for the occasion, but to our minds it expresses what has happened to the railroads. Present exorbitant freight rates have so cut down the volume of business that our common carriers probably are nearer disaster now than before the rates were increased.

It is a poor medicine that is more destructive than the disease. The railroads will have to find some other cure for their difficulties than excessive burdening of the farmers whose products they carry.

### A Worthy Plan

MAKE California fruit a part of the daily menu of every American family.

This, in substance, is the object of the plan advanced by J. E. Bergtholdt, widely known nurseryman and fruit grower of Newcastle (Cal.), as announced recently in ORCHARD and FARM.

Mr. Bergtholdt is deserving of the gratitude and admiration of all Californians interested in the fruit industry. That he should choose such a topic for his advertising and place it before the public at great expense shows that he is well abreast of the times.

For the inclination nowadays is to measure accomplishment by service. "Those who serve" indeed are the leaders in this day and age. Educational advertising is recognized as most worth-while.

Mr. Bergtholdt's suggestion, moreover, is practicable, and all branches of the fruit industry well may cooperate in carrying out his big idea; namely, to publish a book for the American housewife that will teach her how to use and make the most of California's many delicious food-fruits.

### Fire Prevention

OVER 75 per cent of our disastrous grain fires occur between May and August. Many counties have passed grain protective ordinances and a State law now requires the use of spark arresters and fire extinguishers on machinery used in harvesting or threshing.

Nearly 500 recently organized rural fire fighting companies throughout California have reduced greatly the annual fire loss in this State. As measures of co-operation these precautions are suggested.

(1) Checkerboard large fields by cutting hay strips while the grain is green and plow several furrows around each field to guard against fires originating on adjoining property.

(2) Prevent ignition from machinery by equipping with air clarifiers and by keeping carburetors adjusted and bearings lubricated in order to prevent formation of carbon.

(3) Positively forbid smoking in grain fields and warn men about dropping matches.

(4) Comply with the law regarding spark arresters and keep two 2½-gallon chemical extinguishers on each outfit, recharging them at the beginning of the season and inspecting weekly. Supplement these with a supply of sacks for beating out the flames.

This month also ushers in the season for forest fires. Every ORCHARD and FARM reader should co-operate in protecting the public property as well as looking to the safety of his own crops and buildings.

Fight fire! It injures and destroys! Prevention is one form of insurance!

### The Perennial Tariff Question

THE tariff question always has been the football of American politics. Bourke Cockran, an early member of Congress from New York, long ago struck the nail on the head when he asserted the tariff was "a thing of duty and a jaw forever." Probably more pencils have been chewed up and more brains racked in attempting to solve the tariff puzzle than any other.

Almost any man from any part of the country can argue himself black in the face on the tariff and convince himself that he is absolutely right.

It is human nature to want protection for the things we produce and freedom from tax upon the things we consume. Well may our political leaders regard the question askance. But there are a few cases where there is little room for argument. We refer to certain agricultural products, such as lemons, olives, wool and eggs.

One solution of our difficulties would be first to protect the producer and then to secure lower prices for the consumer by improvement in marketing methods and elimination of unnecessary middlemen. This is better than allowing ruinous competition from foreign growers who are able to dump their articles on the American market at less than our cost of production. Such a method of reducing the cost of living is suicidal.

Let us first guard our agricultural industry, which is the basis of our prosperity. By all means we must protect the honest, hard-working producer of necessary food as well as the helpless, consuming public, even if it results in wrecking our disgraceful system of grabbing and our wasteful system of distribution.

The emergency tariff bill should be followed as soon as possible with protective legislation framed by the most able minds of the country. This is no time for America to become the dumping ground for the products of cheap foreign labor and transportation.

### A Marketing Vision

THE Food Administration, during war, was confronted with the necessity of moving great stocks of potatoes. The Nation figuratively was buried under "spuds."

As the result of the advertising and publicity campaign inaugurated by Herbert Hoover the excess of potatoes was absorbed within a few weeks and the imminent waste of valuable food prevented.

Is it not reasonable to suppose that farmers can use the same methods in disposing of excess supplies of any food product? Perhaps this will be one of the next projects of the American Farm Bureau Federation

Through a complete crop reporting service it would be possible for the farmers' organization to keep an accurate check upon production, supplies on hand and probable demand. When it appeared that there would be a disastrous surplus of any product, such as potatoes, onions, wheat or eggs, the farmers, through a special department, immediately could throw the entire weight of their great influence into a campaign to increase the consumption of the article in question.

With a special fund provided for this purpose, it should be possible for the farm organizations to anticipate the accumulation of excessive supplies and influence the public to increase consumption. This ultimately would benefit both seller and buyer, for the public in the end pays speculative losses.

What we need more than anything else is a stable market to assure the grower of a fair return and the consumer of reasonable prices based on production costs.

Such a program, carried out on a National scale, would be nothing more than an enlargement upon the work of California marketing associations.

ORCHARD and FARM
ESTABLISHED 1886

Published Monthly by
Country Life Publishing Co.
1111 South Broadway, Los Angeles, Cal.

J. C. KNOLLIN, Editor. W. TYLER SMITH, Manager.

OFFICES

1111 South Broadway, Los Angeles, Cal.
SAN FRANCISCO
A. J. Norris, Hill, 1014 Hearst Building
NEW YORK
James M. Riddle Co., Brunswick Building
CHICAGO
James A. Buchanan, 1201 Mallers Building

SUBSCRIPTION RATES

One Dollar Per Annum
To Canada or in City of Los Angeles, $1.50 per annum. Foreign, $1.50 per annum. Entered as second class matter at the Post Office of Los Angeles, Cal., under act of Congress of March, 1879.

CONCISE CONTRIBUTIONS

On practical agricultural subjects are invited. Unavailable manuscript will be promptly returned if postage is enclosed. Preference is given to accounts of actual experiences, telling how, when, where and why

## SOURCES of INFORMATION
*Gateway of the Tree of Knowledge*

THE following new Government bulletins now are available and will be sent free upon request. Address Division of Publications, U. S. Dept. of Agriculture, Washington, D. C. Order by number.

FARMERS' BULLETIN

Mulberry Culture .....1184
Standard Containers for Fruits and Vegetables .....1196
How to grow an Acre of Potatoes..1190
Cotton Diseases—Control .....1187

The following technical or scientific bulletins, applying to special industries or localities, will be sent upon receipt of price listed. Address Superintendent of Documents, U. S. Dept. of Agriculture, Washington, D. C.

DEPARTMENT BULLETIN

Annual White Sweet Clover and Strains of the Biennial Form.196
Studies in the Biology of the Mexican Cotton Boll Weevil..926
Co-operative Grain Marketing..937
Grape Phylloxera .....903 15c
Cost of Producing Wheat.....943 15c

From the Agricultural College Experiment Station at Logan, Utah, the following bulletins may be secured free upon request:

Feeding Work Horses....Circular No. 43
Potato Improvement by Hill Selection .....Bulletin No. 176
Some Types of Irrigation Farming in Utah.....Bulletin No. 177

### Many Booklets Available

In the advertisements in this issue subscribers will find many offers of free catalogs, brochures and bulletins on every subject from farm machinery to household equipment. By all means make it a point to take advantage of such offers. While merely sending for a catalog does not obligate one to buy, still this very often is the first step in a money saving transaction, and these commercial publications contain much real information.

The best way to keep industry moving is to buy what you need. Prices in most lines have reached very low levels and the "buyers' strike" is ending all over the Nation. Of course, some of the buyers of farm products seem still to be on strike, but indications are that this situation will be relieved gradually as adjustment levels are reached.

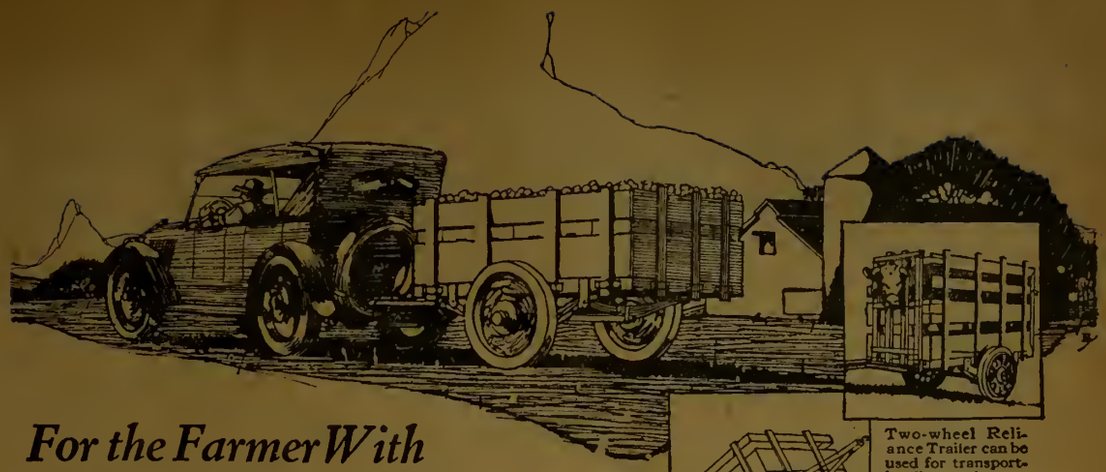
At any rate, ORCHARD and FARM urges every one who can do so to help in keeping goods of all kinds moving. This will aid in stirring up the markets for farm products, for every industry in the long run is dependent upon products of the soil.

## A Constructive Movement

PERIODS of depression breed pessimists, and among fruit growers now we find an element that has lost heart. Perhaps some already are sharpening their axes for the work of removing their trees. Such periods often inspire great ideas and the writer holds with many other horticulturists the opinion that J. E. Bergtholdt of Newcastle, Cal., has conceived a plan worthy of the most thoughtful consideration of the united fruit interests of California. In these times no individual nor organization is big enough "to go it alone" and Mr. Bergtholdt wisely makes no attempt to do the impossible himself. In his effort to enlist the support of individuals and organizations to whom the success of the California fruit industry means everything, a momentous nation-wide campaign of education as to the character, quality, good value and use of our splendid fruits, Mr. Bergtholdt has acted wisely. There are money and brains in California sufficient to convince the people of the world of the fact that our unsurpassed products should have a conspicuous place on the bill of fare in every home. The "Bergtholdt Plan" would place in the hands of the housewife an attractive, well written book on California fruits, their health-giving properties and how to use them that would undoubtedly would

J. E. Bergtholdt

P. Weldon.

# For the Farmer With Small Loads To Haul

Two-wheel Reliance Trailer can be used for transporting live stock.

Light, 1200-lb. capacity 2-wheel Reliance Trailer for extra light work and for campers, etc.

Automobiles are not made to carry merchandise. Yet most farmers make a practice of transporting small lots of produce or material in their cars not realizing, perhaps, how this increases costly depreciation and tire-wear and how boxes, sacks, etc., scratch, mar and tear.

Why not utilize a small 2-wheel Reliance Trailer for minor hauling—towed behind your auto? It saves your car and saves much time. It enlarges your hauling capacity. These trailers pull easily without strain on your car and are balanced correctly for perfect tracking and smooth running.

Reliance Trailers are built throughout of wrought steel—light in weight but strong and durable. Workmanship and materials absolutely guaranteed. Built in capacities of 1200 lbs., 1-ton. 1½-ton and 2-ton.

Why not write for prices and the name of our nearest dealer?

Reliance 2-wheel trailer with special tilting bed. Specially adapted to moving tractors, but can be used for transporting other merchandise. Has side stake pockets and can be fitted with any type body, or easily interchangeable bodies of various types. Bed locks automatically when swung into level position for running.

Reliance Trailer & Truck Co. Inc.
1656 Howard St. San Francisco

Reliance HEAVY DUTY TRAILERS
*The Trailer With Red Wheels*

We also build 4-wheel models of Reliance Trailers in various capacities and types. If interested in big hauling ask us for instructive information on how trailers increase truck capacities and cut down time and hauling costs.

THE STEPHENSON PATENT COOLER
NO ICE REQUIRED

Absolutely Sanitary Perfect Ventilation

Awarded first prize wherever exhibited.
If not for sale at your dealer's
Write for particulars and prices.
L. ANDERSON CO., Mfrs.
Martinez, Cal.

BEEMAN Multi-Service Tractor

Cheapest to buy
Cheapest to operate

You can not only buy a BEEMAN Tractor for less money, but it costs less to operate this powerful small tractor. It is compact and easy to control. Runs exactly where you want it and travels at the proper speed, cultivates narrow rows and is always "on the job."

It is a 4 h. p. stationary power plant besides. Operates for 8 cents per hour in field and 4 cents per hour belt work.

The new improved BEEMAN is the best tractor buy on the market.

Write direct to your nearest distributor for illustrated catalog and full details.

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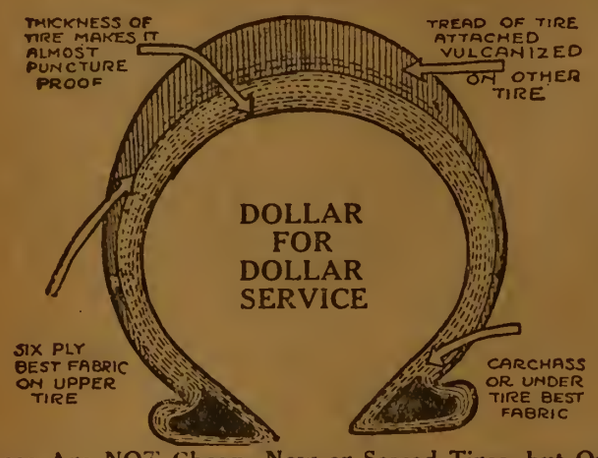
*Distributors*
52-58 Beale Street
San Francisco

Motors Equipment & Tractor Co.
*Distributors*
1310 South Grand Ave.
Los Angeles

PRACTICALLY
PUNCTURE PROOF TIRES




These Are NOT Cheap, New or Sewed Tires, but Our Own Special Process of Rebuilt STANDARD TIRES

| SIZE | PRICE | RED TUBES | SIZE | PRICE | RED TUBES |
|---|---|---|---|---|---|
| 30x3 | $ 6.50 | $2.60 | 34x4 | $11.20 | $4.20 |
| 30x3½ | 7.50 | 2.90 | 34x4½ | 13.65 | 5.25 |
| 32x3½ | 8.75 | 3.10 | 35x4½ | 14.35 | 5.40 |
| 31x4 | 10.15 | 3.95 | 36x4½ | 14.70 | 5.55 |
| 32x4 | 10.35 | 4.05 | 35x5 | 15.75 | 6.15 |
| 33x4 | 10.50 | 4.15 | 37x5 | 17.85 | 6.50 |

These tires are made double thickness, specially adapted for rough roads as the thickness will prevent sharp objects from penetrating through.

OVER 50,000 SATISFIED USERS
10 Per Cent Required on Mail Orders. Sent Anywhere.
SATISFACTION GUARANTEED

TIRE CONST. CO. 1247 S. Olive St. Los Angeles, Cal.

Madewell Surface Pipe

Lock Seam Pipe With the Lock Seam Sleeve

Strongest, smoothest and most practical construction possible. When it comes to surface pipe, there's nothing better.

—Lock Seamed by powerful machinery—a good wide seam that holds.

—Locked-Seamed Sleeves, countersunk on the inside, leaving a perfectly smooth surface. An exclusive Madewell feature.

—Full Gauge Steel guaranteed in all Madewell Pipe.

Send for Catalog S

It explains Madewell Surface Pipe and other Madewell Sheet Metal Products in detail.

MADEWELL PIPE AND CULVERT WORKS
DEPT. 2
E.12thSt. and 25th Ave., Oakland, Cal.

MADEWELL

TREES

Of All Kinds

*DECIDUOUS*
*CITRUS*
And Ornamentals
*VINES AND ROSES*

Let us have your name and address and we will mail new Price List when printed.

FANCHER CREEK NURSERIES
Fresno, California

# "BOB" JONES' CORNER

## Little Stories of Farming

By ROBERT E. JONES—

**Farming Is First**—A Federal Judge in Salt Lake has decided that the United States Smelting Company must so alter its plant that fumes from the smelter stacks shall not injure farmers' crops. This is right. Agriculture is basic and must be protected against damage from any other industry. California so decided in the case of the farmers of Shasta County against the smelters up the Sacramento River canyon. Those Shasta smelters, however, had destroyed vegetation for miles about before the courts got into action.

**The Hammer for Rice**—Rice in the Sacramento Valley still is getting its hard knocks. An orchardist of Sutter County has sued his neighbors for raising the water table of his land and destroying the trees. There are many objections to rice. It really has no place in a settled community, or one that is to be settled. To ride through a rice country at night reminds one of the opening paragraph of Poe's "Fall of the House of Usher"—reeking, sodden atmosphere and myriads of strange insects. Rice growing creates bad living conditions and, without elaborate drainage systems, is destructive to adjoining lands. It was a bonanza crop during the war, but now that lower ocean rates again have put cheap labor of the Orient in control of rice prices, does not offer such alluring prospects as before.

**Farmers From Holland**—George Stam, a veteran farmer of Sacramento River bottom lands, who now owns a ranch at Kirksville, Sutter County, just returned from a trip to his native land, Holland. While over there Stam made arrangements to ship brewing barley direct by water from his farm to Rotterdam, the route being: Sacramento River, Golden Gate, Pacific Ocean, Panama Canal, Atlantic Ocean and English Channel. Stam also made arrangements for three Dutch families to come over and work for him. He is no believer in Oriental labor. He plans building a home on his farm for each of these families.

**That Oriental Problem**—In its latest report the California Land Settlement Board urges State colonies as an aid in solving the problem of Orientalism in California. Unquestionably, the subdivision of large farms into small tracts that can be handled by a white man and his family will help. The Orientals gained their entrance into California first because of the need of labor on large farms. Something even more drastic than subdivision of large areas must be done, however. In Placer County, which is a district of small orchards, the Japanese are numerous. Farmers there lease their orchards to Japanese. It does not pay in the long run, but the owner is freed momentarily of a great deal of bother. Can it be that the California orchard owner has fared too well and is getting lazy?

**We Raise the Asparagus**—Carload shipments of California asparagus are rolling eastward and the canneries are at work on this delectable vegetable as usual. Much of the asparagus of California is produced on the bottom lands of the Sacramento and San Joaquin Rivers. About 25 per cent of the entire crop of the United States is shipped from California. Asparagus is one of the many profitable specialty crops of this State.

**The College of Agriculture**—It seems likely that the question of a separate California College of Agriculture will not be settled right away. The program now is to have a commission investigate and report on the matter at the next session of the Legislature. You have heard of the plan before the present Legislature to move the entire College of Agriculture from Berkeley, where the theoretical end is now taught, to Davis, Yolo County, where the University farm, or practical end, is located. The proposed investigating commission will include farmers, legislators and representatives of the University of California. Some of those mentioned for appointment are: Dr. Elwood Mead and Controller Sproul of the University, C. C. Teague of Ventura, J. I. Thompson of Davis and W. S. Gullford of Butte City, farmers; Senator M. B. Johnson and Assemblyman Percy West. The commision may include five or seven men.

**Kiesel Doesn't Quit**—Fred W. Kiesel, Sacramento banker and farmer who recently sold $82,000 worth of purebred Holsteins at an average of $490 a head, is not going to retire from the breeding business entirely. His affairs are so large that he found it necessary to sell his big herd. He plans, however, to acquire twelve or fifteen high-class cows and to breed for the love of the game. Kiesel's constructive influence in livestock breeding on the Pacific Coast has been a big factor in the progress of the industry. There are many who welcome the news that he is not going to retire entirely.

**A Utah Man Comes**—R. C. Evans, formerly Secretary of the Utah Livestock Show, is now Secretary of the Chamber of Commerce at Redding, Shasta County.

**A Complete State Fair**—Secretary Charles W. Paine of the California Agricultural Society informs me that California may look forward to a complete State Fair this year. One might use the term, "bigger and better," but that phrase has become a little worn. Paine is particularly pleased at the co-operation offered by southern counties. The State Fair will open this year September 3, and will run until September 11.

**Short on Deans**—California is decidedly short on College of Agriculture deans now. Dean Thomas F. Hunt is reported to be in Egypt. He has been studying economic conditions as they relate to agriculture in Europe and Africa. Dean H. E. Van Norman of the University Farm School at Davis recently left for Washington to spend a month or two arranging for a world's dairy congress. Van Norman is president of the National Dairy Show.

**The Big Land Holders**—Do you know who are the biggest land holders in California? The immediate answer, of course, is "Miller & Lux." This company is credited with holding or controlling 14,500,000 acres of land, of which 4,000,000 acres are in California, mostly in the San Joaquin Valley. Haggin & Tevis Estate are next with 460,000 acres, nearly all in Kern County. Lague de Tachea, owned by L. A. Neres and associates, 400,000 acres, is next. These interesting facts are from "Farm Management Notes," a valuable collection of data recently issued by the University of California and compiled by Professor R. L. Adams. This is the most exhaustive publication I have seen from the University. The notes were compiled for student work, but are of such interest that they certainly should be made available for general distribution.

**Irrigation for Santa Clara**—Santa Clara Valley is looking forward to an irrigation project for [illegible] acres. Engineers Fred H. Tibbetts

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and Stephen H. Kieffer are working on the preliminary investigation. They are working with the Santa Clara County water conservation commission. Water costs are fairly high in Santa Clara and the yield of fruits could be greatly increased with an ample supply for irrigation.

**Million Acres in Fruit**—California has nearly 1,000,000 acres in fruit, according to an article by Elton R. Shaw published recently in "The Old Colony Magazine." Shaw deals particularly with canned fruit, which has become of world-wide fame because of International advertising. Did you ever notice, by the way, that a big percentage of the nationally-advertised products of California are especially high-class food products? Here is a little bouquet for California from the Shaw article: "No doubt the gracious climate of the Pacific Coast helps in the abundance, perfection and certainty of the magnificent fruit harvest of that region, but the principal reason for the wonderful prestige of California's canned fruits lies in the fact that the fruits are propagated and grown for this one prime purpose, and then are preserved with that careful attention to detail that the most scientific investigation and practice have developed as essential."

**Harvesting Last Year's Crop**—It seems odd to be harvesting a 1920 cereal crop in the spring of 1921, yet that is what is being done now. Rice, the harvest of which was stopped because of wet weather last fall, was thrashed in the Sacramento Valley through March and April. Glenn County reports a big increase in the rat population, due to the abundant feed which remained in the field. The quality of the rice which went through the winter is not so good as that harvested before the rains.

**Henderson Retained**—The Northern California Milk Producers' Association, now passing through a period of strain because of the low price for butter fat and the opposition of other manufacturing interests, held a meeting recently and refused to accept the resignation of President J. M. Henderson. Henderson is the Sacramento banker who took the leadership in the organization, not only of the northern association, but of the entire State body as well. The refusal to accept his resignation amounts to a vote of confidence.

**A Third Irrigation Project**—The interior of California is bubbling with interest over three great irrigation projects now. The most comprehensive of all, the "Marshall Plan," contemplates a billion dollar irrigation district to include both the Sacramento and the San Joaquin valleys, with some surplus waters to be sent by tunnel to Southern California. Then we have the aged but thoroughly alive "Iron Canyon" project, contemplating a dam for the Sacramento River at Red Bluff to irrigate 200,000 acres. The United States Reclamation Service is interested in this. The latest is the vision of a Boston capitalist, C. F. Ayer, president of the rich Excelsior Water and Mining Company of Nevada County. Ayer told his plans to Nevada and Yuba County farmers recently. They contemplate the irrigation of 75,000 acres in these two counties at an expenditure for water and power development of $25,000,000. Ayer already has spent $75,000 on preliminary engineering investigations. Maj. N. P. Norboe, Assistant State Engineer, and Frank Adams, irrigation authority of the University of California, have indicated their interest in the plan.

**Off for South Africa**—E. O. Amundsen, one of the many underpaid and overworked Farm Advisers of California, is off for Transvaal, South Africa, to become Professor of Horticulture there. Amundsen has been Farm Adviser in Placer county for several years, and has done creditable work there, but he could not resist the temptation of carrying the message of good fruit growing to a far-away land, and, incidentally, of doubling his salary. He is a man of family. California leads in fruit culture; to learn our successful methodsothers must take our good men.

**Has Need of Brains**—When it comes to need for brains, the successful operator of a large, diversified farm must have more gray matter than many who work in the city and handle a business of like magnitude. This is no attempt to pass a bouquet to the farmer. It is the simple truth. Just think about it a minute. The factory manager, with his men all under one roof, has a compact unit within easy reach and all things under his immediate control. But the farmer's plant is out in the open, exposed to every element and liable to a treacherous attack by an army of bacteria at any time. He must foresee all things, guard against small wastes, combat the storm. He must know about hog cholera and pear thrips, fusarian wilt and cup grease. He must seed the crop when the ground is not too wet, or the seed will rot, and must hasten to conserve this moisture or the seed won't sprout. Then he must coax the plant from the ground, club off the insect, bacterial and auto pests, beat the rain to the harvest, and, finally, become a trader to dispose of his crop. This is not a pessimistic wail. The farmer wouldn't trade jobs with the best city man. But he must have brains and must use them—that's the point.

**Seven Cars of Milk**—Our friend, Tilly Alcarta, the world's most productive dairy cow, a resident of Woodland, Yolo County, recently completed her eighth year in milk and butter production. She still stands at the head of cowdom, the prima donna of the bovine world, the greatest milk and butter factory in dairy history since Adam milked a goat in the Garden of Eden. In the last eight years Tilly has produced 201,-135.4 pounds of milk and 7815.12 pounds of butter. If you translate these amounts into terms that can be more readily visualized, this means that Tilly has produced enough milk to fill seven refrigerator cars or to make 3907.56 rolls of butter. Tilly, by the way, is owned by A. W. Morris & Sons of Woodland.

**She Sells Pigs by Mail**—Among the women in California agriculture there is one who has made a marked success in salesmanship. She is Mrs. E. A. Hardy of Orland, manager of Anchorage Farm, which comprises about 1000 acres in fruit, but with a fine herd of pure-bred hogs as well. Mrs. Hardy has been breeding Berkshire hogs for a number of years. In fact, the Anchorage Farm herd is one of the most prominent in the West. Mrs. Hardy's success in selling young pigs by mail to breeders from Montana to Hawaii has been the envy of many fellow breeders. If you should ask her how she does it she would say: "First, advertise to reach those interested, then give each inquiry your personal attention. Study the letter and be sure that you understand just what your customer wants. Be frank. See that the customer gets something better than he expects. Then keep in touch with your customers. Drop them a line now and then to see how they are getting on. This follow-up system is important." A simple, human process—but it always works.

**Come Here to Learn**—Scientists from all parts of the globe come to California to study our methods of agriculture. Fruit growing has been developed in California to a more advanced state than anywhere else in the world. That is why it attracts men seeking information. A recent visitor to the office of State Director of Agriculture Hecke was Ramon Sala of the University of Barcelona, representing the Spanish Government.

**The World's Seed Garden.**—Did you know that California is the seed garden of the world? Possibly the statement stretches the point a little, but it is mighty close to the truth. During the war California had approximately 50,000 acres in vegetable seed. Our seed still is shipped to many parts of the world. Along the Sacramento River thousands of acres of onion, lettuce, pea and carrot seed is produced. In the Santa Clara Valley are thousands of acres more.


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**It's quick n' easy to make. Five gallons water, can of Mel-o-Malt, 2 pounds sugar (and your work is done).**

*Oh, Boy! It's a REAL Liquid Joy!*

Shipping Weight 2½ lbs.

**'The Brand That Made Home Brew Famous'**

A 2½-pound can makes 5 gallons of the BEST, the SNAPPIEST Beverage you ever drank. Pure extracts of Malted Barley Syrup and Choicest Oregon Hops—all in one can ready to use. Makes a rich, golden beverage. PEP? You bet—and LOTS of it! Just like the Old-Time Stuff—FOAM—BODY and EVERYTHING!

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| 1 2½-lb. Can | $ 1.50 |
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| 12 2½-lb. Cans | 16.00 |
| 24 2½-lb. Cans | 30.00 |

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# Dehydration of Pears

By Arthur W. Christie
INSTRUCTOR IN FRUIT PRODUCTS, UNIVERSITY OF CALIFORNIA

FOR several years past large acreages of new pear orchards have been planted, and it is predicted that five years hence the present production of California pears will have doubled.

In a recent address President Frank T. Swett of the California Pear Growers' Association estimated that with a normal increase in 1921, 45,000 tons additional would have to be marketed as compared with the 80 per cent of normal production in 1920.

When over-abundance threatens the profits of the fruit grower he cannot well curtail production, but must increase the demand for his products. Normally 50 per cent of the pear crop is marketed fresh, largely in the East; 30 per cent is canned and 20 per cent or less is dried. In order to stimulate increased demand for fresh and canned pears it is imperative to use only perfect pears. This means an increasingly large quantity of windfall and cull fruit of good quality, yet unsuited for canning or fresh shipment.

## A LIMITED OUTLET

Unlike many other fruits, pears are sold only in the fresh, canned or dried form. Pear cider and vinegar are not common as in certain European countries. Pear jelly, jam and butter are commercially unknown and even pear pie is unusual.

The fruit products laboratory of the University of California has been endeavoring to develop new and profitable pear products. Excellent pear syrup, vinegar and jam have been produced from cull pears, but the manufacture and introduction of these products may not yet be economically feasible. The dried pear, however, offers interesting possibilities.

The per capita consumption of dried pears in the United States is only one-half ounce per annum or about one bite per person per year. In fact, most Americans never eat or even see dried pears. However, if dried pears of high quality were introduced by an extensive advertising campaign such as given other California dried fruits, a market should be created which will go far toward insuring the future prosperity of California pear growers.

## SUN-DRYING SUCCESSFUL

Pears have been sun-dried in California for many years, Lake County having a reputation for the finest quality. Careful investigation shows the enviable reputation of the Lake County product to be due to several factors. Owing to the lack of railroad transportation, no pears are shipped out fresh, and consequently the very best grades of pears as well as culls are dried.

In general, also, the later-ripening pears of the mountain regions contain more sugar, and consequently yield a product of better color, texture and flavor. Lake County pears are sulphured very heavily, from forty-eight to sixty hours, requiring about twelve pounds of sulphur per ton of fruit, and then are exposed to the sun for only about one day, the drying being completed in the shade under open sheds. In other pear-growing sections generally only cull fruit is dried and not such great care is taken in the drying process. Although these highly sulphured pears are beautiful in appearance they have often more of a sulphurous acid than a pear flavor and when cooked are not at all comparable to canned pears.

Considerable interest has been manifested recently in the dehydration of pears in the hope of making dried pears of high quality from otherwise unprofitable material. In order to ascertain the various factors involved in the dehydration of pears a large scale test was made at the University Farm evaporator in 1920 and many smaller tests in the laboratory at Berkeley. The dehydration of pears in several commercial plants also was studied. The more important results and recommendations may be summarized as follows:

## DEGREE OF RIPENING

Pears are picked when hard ripe and still green in color and are allowed to ripen in lug boxes in the shade. Orchard run pears preferably are graded into large, medium and small before

*Evidences of Successful Pear Dehydration*

*Above is shown the co-operative dehydrator, erected during 1920 at Placerville, by the El Dorado County Farm Bureau. Below—A tray of unpeeled dehydrated pears at the University Farm Plant, Davis.*

[illegible]ng. During ripening they should be sorted two or three times and the ripened fruit removed for drying. The fruit should be handled carefully at all times to avoid excessive loss by rot[illegible]. Comparative ripening tests at the University Farm in which uniform pears were ripened in (a) layers of straw under the shade of trees; (b) lug boxes stacked under an open shed; (c) screen trays stacked under a shed, showed little difference in amount of rot. In this test the rot did not exceed 10 per cent, whereas carelessly handled pears often lose over 30 per cent.

PREPARATION FOR DRYING

The bulk of the pears merely were cut in half and spread on three feet by three feet slat bottom trays.

Smaller lots were peeled by hand or with lye, as in canneries. Immersion in boiling 10 per cent lye solution (about one pound per gallon for twenty seconds for ripe and forty seconds for hard ripe fruit) was sufficient to slip the skins. The peel and adhering lye must be washed off in clean water. Green pears do not lye-peel satisfactorily. The loss of weight in peeling was 20 per cent and for peeling and coring 35 per cent.

Peeling, followed by slicing or cubing, as is done with apples, gave excellent products. Unpeeled pears curl at the edges when dehydrated. This can be avoided and an excellent unpeeled pear produced by removing a ring of peeling around the pear from the stem to the calyx end and halving the pear through this line, followed by removal of stem, calyx and core.

BRINE TREATMENT DESIRABLE

In order to prevent the cut fruit from browning, especially the peeled fruit, it should be dipped in a dilute brine (four ounces salt per gallon) or spraying on the trays with salt solution. If the fruit is wet it also will absorb the sulphur fumes more readily. Various schemes for retaining the white color of the pear during drying were tried. Blanching in hot water or steam or dipping in salt solution did not prevent browning, although when followed by sulphuring it reduced the necessary time of sulphuring. Sliced or cubed pears required only thirty minutes' sulphuring; peeled and cored halves one to two hours, while unpeeled fruit must be sulphured at least twenty-four hours if it is to retain a light color. The fruit should go directly from the sulphur house to the dehydrator.

TEMPERATURE OF DEHYDRATION

In the tests at the University Farm evaporator the pears entered the tunnel at a temperature of 100 to 120 degrees F., moving progressively toward the source of heat until finished at a temperature of 155 to 165 degrees F.

This finishing temperature was found to be too high, the pears turning light brown when about three-fourths dry. Profiting by this experience, the co-operative dehydrator of the El Dorado County Farm Bureau at Placerville finished the pears at only 145 degrees F. The resulting product was "bright white" and of excellent flavor when cooked.

Pears are the most sensitive to high temperature of our common fruits and must be finished at not above 145 degrees F. If a light-colored product is to be obtained. Laboratory experiments demonstrate that the "parallel current" system of dehydration, in which the moist fruit is entered at the highest temperature and finished at the lowest temperature, permits the employment of higher temperatures with consequent decrease in the drying time, as well as safeguarding quality by finishing at a safe temperature.

CASE HARDENING AND HUMIDITY

[illegible] harden very badly during [illegible] that is, the surface of [illegible] dehydrated by rapid [illegible] prevents the escape of moisture from within the pear. This greatly increases the time as well as the cost of dehydration. Case hardening of pears largely may be prevented by drying with air of considerable humidity.

In one test halved, unpeeled pears required forty hours to dry at a temperature of 140 degrees F. in air of low humidity (3-6 per cent), while only twenty-seven hours were required with air at the same temperature containing 30-35 per cent humidity. Recirculation of exhaust air materially reduced case hardening, but even by this means it was impossible to increase the intake humidity above 25 per cent. The installation of two fine sprays of water in the furnace room made it possible to increase the humidity to 50 per cent.

In this connection it is important to note that moist air has a greater heat-carrying capacity than dry air at the same temperature. This is due to the latent heat of the moisture therein. Although it is essential for speed and quality in drying that a relatively high humidity be maintained in the intake air, care must be taken that the humidity does not increase to such an extent that the air, after cooling and absorbing moisture in its passage through the fruit, becomes saturated and loses all drying power.

***CALIFORNIA is the most important pear growing State, producing from a quarter to sometimes half the pears of the United States. The California pear crop of 1920 approximated 90,000 tons, returning to the growers between eight and nine million dollars. Dehydration will play an increasingly important part in marketing the great pear crop as new acreage comes into bearing, according to Professor Christie, who is writing a series of articles on this important subject especially for ORCHARD and FARM.***

DRYING TIME

Halved, unpeeled pears required thirty-six hours' drying time when finished at 165 degrees F. Peeled and cored pears required only eighteen hours at 165 degrees F., while sliced or cubed pears can easily be dried in six to eight hours. All these periods can be reduced materially in commercial practice by the use of larger volumes of air and sufficient humidity. The "parallel current" system also should reduce materially the drying time.

DRYING RATIOS

The drying ratio of pears which were merely cut in half was from 4.5:1 to 5:1, while peeled and cored pears gave a shrinkage of 7:1.

COST OF OPERATION

The cost per green ton of dehydrating unpeeled and uncored pears in the University Farm evaporator was as follows:

| | Cost per green ton |
|---|---|
| 1. Cutting at 20c per 50-pound box | $ 6.78 |
| 2. Tray men and night operator at 50c per hour | 4.26 |
| 3. Fuel at 8c per gallon | 3.48 |
| 4. Power and light | .50 |
| 5. Sulphur at 3½c per pound | .40 |
| Total | $15.42 |

This does not include the salary of a superintendent or overhead expenses. If pears are ringed, cored or peeled, the labor cost per green ton will be greater, and owing to the greater shrinkage the cost per dry ton will become rather high. One commercial plant operated in 1920 reports a gross cost of production of 12 cents per dry pound.

CONCLUSIONS

As a result of the experiments of the past season it does not seem economically advisable to attempt by dehydration to imitate "Lake County" sun-dried pears, which are not peeled or cored and are highly sulphured.

On the other hand, it has been conclusively demonstrated that entirely new and superior dehydrated pears can be produced. The dehydrated product has been found excellent in sauces, pies and puddings. Such compounds already are being produced commercially in California. Necessarily they command higher prices than the common, sun-dried article, but their superiority warrants their greater price. With sufficient advertising "Calapearo" dehydrated pears should be a decided factor in disposing of California's increasing pear crops at a profit.

## Raisins—a "Beauty Food"

It is iron in the blood—a tiny supply of it daily—that helps to bring the bloom of youth to women's and children's cheeks.

Raisins, rich in immediately assimilable iron, therefore may be called a "beauty food." Eat raisins daily and be sure that you get all the iron you need.

# The Luscious "Energy Dessert"

*Serve to tired men at dinner*

Try a raisin pie tonight—made according to the recipe at the left.

See how delighted your men folks will be. And note how it "sets them up" in spirit and in strength after a hard day's work.

They'll be surprised to feel the energy and new vigor which are almost immediately imparted through the raisins. Raisins are nature's own confection in a pie—sweet, tender and delicious. The juice forms a luscious pie sauce. It's an epicurean dessert.

Try it now. Learn what *real* raisin pie is like. Every first-class baker has this pie.

### Raisin Pie

1 cup SUN-MAID Seeded raisins
1 cup water
1 level teaspoon salt
1 tablespoon corn starch
1 teaspoon sugar (may be omitted)

Wash the raisins, put in saucepan with cold water, bring slowly to a boil; add sugar, salt and corn starch, which has been mixed with a little cold water; boil three minutes; pour in pie tin which has been lined with crust, while hot; cover; brush top with cold milk.

### Pie Crust

1½ cups flour
½ teaspoon salt
2 tablespoons shortening

Sift flour and salt together; add shortening, rub in very lightly with tips of fingers; add a little very cold water, just enough to hold together. The less you handle the dough the better the crust will be, and if made as the recipe tells, it will be a very dry crust.

# SUN-MAID RAISINS

Sun-Maids are the *clean, sweet, wholesome* raisins, packed in California, in a great immaculate glass-walled plant. They're your own American raisins, and you know they're *good*.

Luscious, tender, juicy, meaty raisins, made from finest table grapes. Always ask for them *and get them*. Use in cakes, pies, cookies, puddings, salads, etc.

Three varieties: Sun-Maid Seeded (seeds removed); Sun-Maid Seedless (grown without seeds); Sun-Maid Clusters (on the stem). Insist upon the Sun-Maid brand.

Send coupon for free book, "Sun-Maid Recipes." Learn how to use in many attractive ways.

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## NO FAILURES TRAPPING GOPHERS

The above heading is not written for the purpose of fooling the readers of this column. Our daily mails are full of orders for **Chubbuck's Double Catch Gopher traps**, with the number of repeat orders rapidly increasing. The farmers, owners of Double Catch Traps, write our advertisements for us. Here are two letters snatched from the latest mails:

Enclosed is my check for $3.00 for which I would ask you to send me **four more gopher traps.** It might be of some interest to you to know that this is the only trap we have ever had that would really catch gophers. **My man reports that he has caught more gophers with the first four traps than with all the traps and poisons he has put out in the past year that he has been in my service.**—Frank A. Guernsey, Manager, Sacramento-San Joaquin Bank, Stockton, Calif., 4-30-'21.

Recently an advertisement about your gopher traps came to our notice. It looked like a strong "adv.," but since it appeared in such a reliable paper as the Pacific Rural Press, we decided to try one on a smart gopher which steered clear of every trap we ever set for him. The gopher got the worst of it in the course of an hour after setting the Chubbuck, and we have been fooling gophers ever since. Before that they sure fooled us. A trap like that is a real blessing for a pest-ridden locality. Now make something just as effective and simple to trap ground squirrels and we shall call your name blessed indeed. Thanking you for calling our attention through your truthful advertisements, and wishing you every success. — Brinkmann Brothers, Lathrop, Calif., 5-9-'21.

If you cannot secure these traps from your local seed stores or hardware dealers, send direct to us. **Price, postpaid, 75c.**

**E. J. CHUBBUCK COMPANY**
**Manufacturers, Dept. O,**
**731 Market St., San Francisco, Calif.**

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# Lure of the Western Berry

By J. L. Stahl

## Part II.—Propagation, Training of Blackberries and Loganberries

BLACKBERRIES and loganberries thrive on a variety of soils, but give best results in rather heavy clay, retentive of moisture. On such a soil they produce stronger canes, bear larger fruit and are longer-lived than when grown on very sandy land.

**Propagation**—Growers of loganberries, dewberries, Evergreen and other trailer blackberries, usually produce new plants in the same manner as black raspberries, by bending down the canes and covering the tips with earth. The same method outlined above applies to these varieties.

Blackberries, which, as a rule, are planted in the early spring, are set in rows seven or eight feet apart. Loganberries are placed about the same distance apart in the row, but when the cane growth is no longer than ten feet the plants may be set as closely as six feet apart in the row. Loganberry plants required per acre are: 888 when 7x7 feet; 777 when 7x8 feet, and 680 when 8x8 feet.

Bush blackberries, like black raspberries, are better placed 3 or 3½ feet in the row, requiring 2075 plants per acre when set 3x7 feet.

Evergreen blackberries usually are set 16 or 18 feet apart in the row. When set 18x7 feet, 346 plants will be required to the acre, and 16x7 feet, 389 plants.

**Varieties**—Where bush blackberries thrive the Snyder or Eldorado varieties are most popular, but in many of the older berry sections this type of blackberry has been discarded, on account of its tendency to become infected with plant diseases.

Of the black trailer berries, the Lucretia and Mammoth dewberries are widely grown in the warmer sections, but in the North they are very easily winter-killed and usually not profitable.

The Himalaya Giant blackberry is popular for home use, but it also is subject to diseases and is not grown to any extent as a commercial berry. The most profitable blackberry grown today in the Pacific Northwest is the Evergreen. This berry grows wild on the hills, in pastures and along the roadsides. When cultivated and fully ripe the fruit is rich in flavor and the yield is double that of the bush blackberry types. It is in demand by canners.

Logan and Phenomenal berries are so much alike that they may be considered in the same group and the same system of culture given to each. Under the same climatic conditions and on the same soil the Phenomenal berry will come in fruit a few days later than the Logan.

The fruit is lighter in color, larger and broader at the base or stem end, and the drupelets are coarser in texture than those of the Loganberry. It is also inclined to produce double, undeveloped berries which break apart or crumble when picked. This is a bad fault of the berry.

**Returns Per Acre**—The yield of loganberries varies from 5000 to 10,000 pounds per acre, according to season, age and locality. Evergreen blackberries frequently produce 10,000 to 16,000 pounds per acre. Loganberries and blackberries, like raspberries, should not be planted among trees, for the same reasons given above, but may be profitably inter-planted with field crops the first year.

**Thinning**—Loganberries and blackberries are thinned in the same manner as raspberries, the number of shoots to be cut out varying from 10 to 14 for loganberries and from 8 to 12 for evergreen blackberries.

**Training**—Blackberries and loganberries usually are trained on a trellis at the beginning of the second season of growth. The last of February or early March is a good time for training. There are several methods or systems of trellising, but only the more common are described in this article.

The number of fruiting canes to allow in each hill will depend upon the type of berry, individual plant and system of training. Generally, the number for loganberries is ten to fourteen, and for evergreen blackberries, eight to twelve. The weakest canes should be removed entirely. Most growers cut back the lateral growth on the fruiting canes of evergreens either entirely or to a short stub.

This is not so important with loganberries, as the lateral growth is shorter. Allow the tips of the canes of adjoining plants of logans and evergreens to overlap three or four feet on the trellis.

**Curl and Fan System for Loganberries**—Two common methods of training loganberries are to curl or spread the fruiting canes on two or three wires strung one above the other and stapled direct to posts twenty or twenty-five feet apart. Where two wires are used one is about thirty-two and the other fifty-four inches in height. (See upper illustration, page 18.) The canes are raised on the wires and curled in a more or less spiral form in both directions, or spread out fan-shaped. Where there is considerable wind, it is best to tie the canes near the tips to the wires so that they will not become loosened.

Training Loganberries

The young or new canes should be left on the ground and kept under the trellis during the growing season. This may be accomplished by bending heavy wires in the form of arches, or by placing cross sticks every few feet along the row.

**Evergreen System**—Another system quite similar to that used for training evergreen blackberries is used by some of the best loganberry growers with excellent results. (See illustration for evergreens.)

**Overhead System for Evergreen Blackberries**—A good system for training the evergreen is to place the fruiting canes on a trellis of two wires and cross slats supported by cross pieces nailed to the posts at a height of about four feet from the ground. (See lower illustration, page 18.) The wires usually are placed about twenty inches apart. The cross slats should be notched to fit the wires and placed about two feet apart, and the canes carried serpentine fashion over and under alternate slats and held firmly to the trellis.

During the growing season the new canes are carried to a similar trellis about two feet above the fruiting canes. The cross pieces and slats on this trellis need not be quite as long nor the wires as far apart as on the trellis supporting fruiting canes.

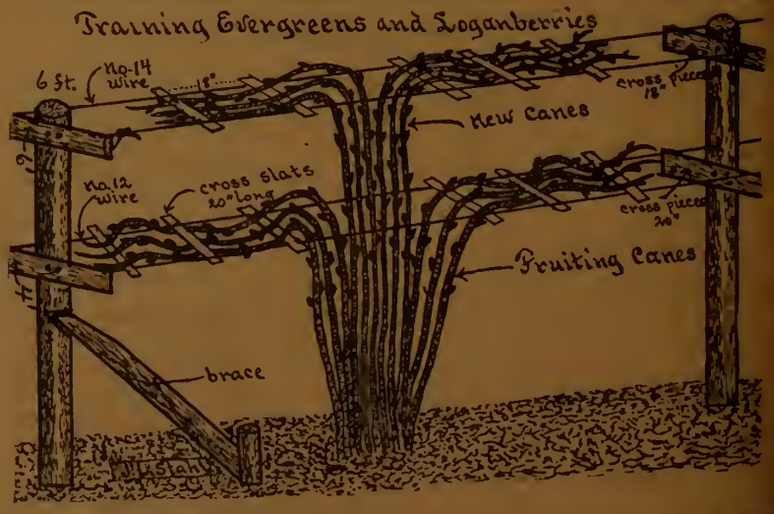
### SUPPORT OF TRELLISES

Both trellises are supported by eight-foot posts, set between plants sixteen or eighteen feet apart and two feet deep. Nine-foot posts, well braced, are used for ends. The trellis supporting the fruiting canes should be of No. 12 wire, and No. 14 for the new canes. After the fruit is harvested, or in the early spring before the buds swell, remove and burn the old canes and drop the new ones to the lower trellises.

A common method of training evergreens is to trellis the fruiting canes at about four feet in height, and the new canes underneath about eighteen inches from the ground. When training is done the new canes are raised to the upper trellis.

Professor Stahl, who is horticulturist at the Western Washington Experiment Station, will discuss in a future article the training of raspberries, as well as other subjects of vital importance to the berry industry.—Editor.

Training Evergreens and Loganberries




## New Fumigation Tents

CARRYING forward the experiments reported in a recent issue of ORCHARD and FARM, Professor Quayle of the Citrus Experiment Station has attracted the widest attention through results secured with gas-proof fumigation tents made of balloon cloth loaned by the Arcadia Balloon Station. The new method promises to revolutionize fumigation practices, since it entirely eliminates leakage.

In addition, it opens the best method known for control of especially resistant scales. Efforts now are being made to secure an extensive supply of the cloth in order to supply the needs of California citrus growers.

## Cutting Alfalfa for Seed

A SUCCESSFUL alfalfa seed producer uses a grain binder for harvesting his crops. He does not tie the bundles, however; in fact, does not even operate the entire machine. Everything is disconnected but the platform canvas. As the binder cuts the alfalfa, it rolls off the end of the canvas and drops in a winrow under the machine.

In order to prevent clogging of the machinery, it is necessary, he says, to cut out ten inches of the iron platform under the canvas on the end next to the drive wheel. At each end of the strip removed, however, should be left an inch or two as a guide for the slats of the canvas. The winrows are bunched with the hayrack for stacking or threshing. There is practically no loss from shattering.

## "Dry Spraying"

KINDLY advise me if dry spraying is as effective as wet spraying.—W. H. Merriam, San Jacinto, Calif.

**Reply by George P. Weldon**

Dust spraying is rather too new a process to say definitely whether it is as good as liquid spraying. In the case of walnut aphis, a very destructive pest of walnut trees, it has been found that a dust spray containing nicotine, known as nicodust, controls the pest very successfully.

This is applied by means of power dusters and has been developed by Prof. R. E. Smith of the California Walnut Growers' Exchange. Sulphur has been dusted upon vines for the control of mildew and upon trees for the control of red spiders for many years, proving very successful. Other than this work mentioned, very little has been done with dust sprays of any kind.

There is a great field for experiments along this line, and the good results that have been attained by the walnut growers in the control of the aphis indicate that possibly dust sprays eventually will come into more general use.

In the control of various species of thrips (little pests which get into the blossoms of fruit trees), the dust spray may prove to be more effective than wet spray. However, as yet there has not been enough work done to justify definite conclusions. I would suggest that you correspond with Prof. R. E. Smith of the Insecticide Department, California Walnut Growers' Exchange, Los Angeles, who I am sure can give you certain interesting information.

I would suggest also that you get in touch with County Horticultural Inspector H. A. Richardson at Hemet, who is thoroughly familiar with the various spray materials which are being used in the control of insect and fungus pests.

## Pruning Valencias

I WOULD appreciate any information you can give me in regard to pruning my Valencia orange grove. Practically all the trees have dead wood inside the smaller branches. Will you please give me additional advice as to the care of the grove?—L. L. Schilling, Orange, Calif.

**Reply by George P. Weldon**

I would suggest in reply to your letter that you have either the County Horticultural Commissioner of Orange County, Earl Morris, or the County Farm Adviser, Harold Wahlberg, visit your place and demonstrate the pruning of your Valencia oranges, as it is very difficult to give explicit directions by letter.

Generally speaking, the pruning of orange trees should consist in the removal of dead wood and enough of the smaller branches to permit sunlight and air to circulate freely throughout the tree. Cuts should be made close to other branches and topping-back is usually not desirable. As in the case of other trees, pruning should be done annually, with the idea of removing each year all branches which are in-[illegible] which will probably inter-[illegible] time. If this is done [illegible] necessity for the [illegible] branches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*—"Principles of Agricultural Chemistry," Prof. G. S. Fraps, Ph. D.*

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# Do You Give Your Alfalfa Proper Care?

By B. A. Madson

ASSISTANT PROFESSOR OF AGRONOMY, UNIVERSITY OF CALIFORNIA.

OWING to our favorable climate and the excellence of most of our soils, young alfalfa often will "come along" and make a good growth and an excellent crop regardless of the treatment it receives.

Professor Madson

On the less favorable soils, however, more care is necessary in getting the crop started, for improper treatment while the plants are young may impair seriously the productivity of the field throughout the years to follow.

Most farmers are particularly anxious to bring the field into production as quickly as possible, and with this end in view force the plants to the limit by frequent irrigation while they are small. On good, porous soils with an adequate supply of water throughout the season such a procedure may not be objectionable, but on impervious soils or where there is a seasonal shortage of water, lower yields during the active producing period of the crop are apt to result.

### ROOT DEVELOPMENT

While the roots of alfalfa are able to penetrate the soil to a great depth, ordinarily they will not go deeper than is necessary to secure the moisture and plant food essential to their growth. Frequent application of water while the plants are starting will tend to cause most of the root growth to develop near the surface of the ground. Furthermore, root development is most rapid during the early stages of growth, and the general habit of root growth becomes more or less fixed during this period.

*THE "King of Forage Crops" is appreciative of thoughtfulness and special attention, returning the cost many times in greater profits and longer service. How progressive growers keep this well loved monarch on his throne and defeat the enemies that seek to unseat him is told in an interesting and helpful manner in this practical article.*

It is true, of course, that with changed conditions considerable root growth will take place later, but normally it will be less in proportion to the vegetative growth and the demand made upon the roots for water.

### DROUTHS MORE DANGEROUS

If the grower happens to be unfortunate enough to be located in a section where the supply of irrigation water gives out in the late summer or early fall, he will find that the crop treated as described above will suffer more severely from the drouth than will a crop with a better developed root system.

Experience has shown that the best procedure in most cases is to withhold irrigation water from young alfalfa until the plants show a positive need for water, which usually will be indicated by a darkening of the foliage and a yellowing of the lower leaves. Withholding water at this stage will force deep root penetration and such plants will be much better able to withstand a period of drouth in late life, because they can draw up the moisture from a much larger volume of soil.

The exact time the first irrigation should be given will depend upon the texture of the soil and the time of seeding. Early spring-sown alfalfa, however, on soil of good moisture-holding capacity usually will not need water for two or three months; on light soil earlier irrigation will be necessary, but on such soil delaying the second irrigation as long as possible usually will be advantageous.

Delaying irrigation, of course, will reduce the first season's crop, but the loss thus sustained will be more than offset in most cases by the greater vigor of the plants in succeeding years.

## Clipping Young Alfalfa

CLIPPING young alfalfa when the plants have attained a height of ten to fifteen inches is rather a common practice in some localities. Usually it is done to check weed growth, but also with the idea that cutting back the plants will stimulate root development and cause the plants to stool more.

Clipping, however, never should be done unless weed growth threatens to smother out the alfalfa. Experiments have shown that clipping stunts the growth of the plants, often reducing the yield materially for two or three years.

If we pause to reflect on the nature of the plant's growth we can readily understand why this is so. The leaves and green parts of the plant are where the complex organic compounds are manufactured that go to make up plant growth. Moreover, while the plant is young, the root is developing rapidly requiring a large amount of manufactured plant-food material.

### RESERVE FOOD SUPPLY

Normally, also, considerable reserve food material is stored in its tissues for use at a later time. If now we clip the plants back close to the ground we are removing a large part of the manufacturing organs which feed the root; consequently root development is checked and the plant gets a "set-back."

In some cases where the early growth is slender and spindly, close clipping may remove all the leaves, causing death of many of the plants.

If possible, the plants should be permitted to grow undisturbed and uncut at least until they are in full bloom. By this time sufficient reserved food material will be stored in the roots to maintain new growth until it is able to function. Furthermore, about this time the plants start to bloom, new buds and shoots appear from the base of the plant and soon will be able to take the place of the older growth.

### TO CONTROL WEEDS

When the field is very foul with weeds, clipping may be necessary in order to prevent the weeds from smothering the plants, but the field should be clipped as high as possible in order to retain enough leaves on the plant to keep it growing. The cutting back of the weeds usually will check their growth sufficiently so that will not again prove troublesome. It goes without saying, however, that it is better to have the field clean before seeding, so that the alfalfa plants need not have to contend with weeds.

## Care of Old Alfalfa

THE productive life of the average alfalfa field in California is short as compared with that of fields in other sections of the country. In this State a field usually reaches its period of maximum production about the third year, and by the end of the fifth or sixth year is declining rather rapidly. By the time the field is seven years old the yield often will have fallen below the point of profit. As compared with this we find many fields in Nevada, Utah, Colorado and other sections of the West which at fifteen

to twenty years of age apparently are as productive as ever.

CAUSES OF DETERIORATION

The cause of the rapid deterioration of California alfalfa fields largely is climatic. During the winter months the alfalfa is dormant, but our climate at this season is mild enough to permit the rapid growth of such weeds as fox-tail, crab grass and the like. These weeds soon are occupying the vacant spaces in the field, crowding out the weaker plants and stunting the growth of even the most vigorous. In a short time they develop to a point where they constitute a large part, if not the bulk, of the first cutting of hay.

Growth is stunted further through the packing of the soil by winter rain and repeated irrigation, which reduces soil aeration, checking bacteria action as well as root development. In regions where the winters are severe enough so that the soil freezes, this condition is overcome to some extent by the heaving of the soil due to alternate freezing and thawing. Furthermore, where the winters are severe, weed growth does not have an opportunity to start until spring, at which time the alfalfa also is ready to begin growth. With an equal start, it effectually holds its own.

PROLONGING LIFE OF FIELD

While usually it is not feasible to attempt to keep a field in alfalfa for very many years in this State, yet it is possible materially to prolong its productive life by cultivation or renovation.

Cultivating the field during the winter will aid materially in holding weed growth in check and in keeping the soil loose and well aerated, provided the work is done properly. Alfalfa may be cultivated at any time during the winter while the plants are dormant, but if the weeds are bad the best time is soon after they have started growth. At this stage they are more easily dug out and destroyed. There appears to be a general impression among farmers that cultivation is less effective on light soils than on the heavier type.

Perhaps the most efficient implement for the purpose is a springtooth harrow with rather broad teeth. This instrument digs out the weeds and loosens up the soil effectively, while the flexibility of the teeth permits them to dodge around the plants without injuring them. On very weedy fields, cross-harrowing may be necessary. On soil that is very hard better work often is done if the field is gone over with a disc first to loosen the soil.

Many farmers use the ordinary disc alone, but it must be run at only a slight angle, or with little shearing action to prevent cutting off too many of the plants. In order to be effective, therefore, it is necessary to weight it heavily and to go over the field two or three times, or to double disc and follow with an ordinary spike-tooth harrow.

Numerous special alfalfa cultivators or alfalfa renovators also are available, most of which do excellent work, but since they can be used only for the one purpose their purchase probably is not justified unless the acreage of alfalfa to be cultivated is large.

WINTER GRAIN CROP

Another practice which is gaining in favor is to cultivate the field in the late fall or early winter and sow in a cereal, such as barley or oats. While the cereal may injure the alfalfa a little by choking or crowding, it does help to keep the weeds in check and certainly is preferable to fox-tail as a part of the first cutting of hay. To get a good stand, however, the field must be cultivated thoroughly and the cereal must be seeded early in the winter before the soil gets too cold or the weeds have too much of a start.

*Next Month—Another Startling Alaska Article!*

*The accompanying map will give a fair idea of the area of "Our Last Frontier." If Alaska could be laid out upon the United States, her northwest corner would overlap from Minnesota into Canada; her southeast extremity would extend to the Atlantic coast just north of Savannah, Georgia, while several of the islands of the Aleutian group which form the Alaska Peninsula would rest in California and extend almost to the Pacific coast. The dotted area, suitable for cultivation or grazing when cleared, includes about 100,000 square miles. The second article in the series on "Agricultural Possibilities of Alaska," written especially for this magazine by E. J. White of Juneau, will appear in the July issue.*

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# Seasonable Citrus Topics

By Robert W. Hodgson

THE lemon industry is in a serious condition. Eighteen months of no profits and twelve of definite losses are beginning to show certain signs of deterioration in the majority of our groves. No other branch of fruit production involves so great an annual expenditure per acre in the raising of the crop or requires such close attention to detail (without which certain decline may be expected) as the California lemon industry.

Robert W. Hodgson

For more than a year the California lemon grower has had no incentive whatever to continue spending $300 or more per acre, "throwing good money after bad." During the past six or eight months he hasn't had the money to spend, anyway. And, altogether, serious injury to the orchards has resulted, injury which it will take several years to repair.

This may be seen reflected in a number of ways. Less attention is being given to the general cultural operations, there being a rather widespread let-down in morale as to orchard upkeep. Fertilization has either been cut to a minimum or dispensed with entirely, as witness the remarkable break in fertilizer prices of the past two months. Fumigation will be dropped for the season by many growers in favor of a cheaper but less effective spraying.

TREES SERIOUSLY WEAKENED

Allowing the fruit to remain on the trees has caused serious weakening of the trees. They have not looked so badly since the spring of 1913, following the freeze. The foliage is sparse, much dieback is to be found, and the picks for the next year in most instances will be small.

In certain districts topworking has been carried on extensively and we know of some acreage where trees have been pulled out. Neglect of fertilization and fumigation are the cardinal crimes which may be committed against citrus orchards with the certainty that crops for the coming years will be sacrificed. But what are the lemon growers to do?

## The Freight Situation

PRINCIPAL among the factors contributing to the present demoralization of the citrus market is the item of freight rates. The increases, first of 25 per cent, followed by 33 1-3 per cent, sanctioned by the Interstate Commerce Commission under the transportation act of 1920, are throttling all agriculture and particularly the high-tonnage-per-acre agriculture of California. Adding a mortgage of $3000 per acre, carrying interest at 7 per cent, is proving a burden greater than the citrus industry can bear.

MANY IDLE CARS

That the situation is critical may be inferred from the fact that the latest reports show half a million idle freight cars on the railroad sidings of this country. Eight months ago there was a shortage of half a million cars. Hearings by the dozens before the commission have failed to accomplish anything. The expressed attitude of the commission is that until the labor factor in the transportation system of the United States shows a decrease nothing will be done toward lowering freight rates, else the railroads will go bankrupt. In the meantime the farmer takes the loss, and thousands of acres of California's most valuable fruit industries are threatened with ruin.

## April Weather "Unusual"

TO TOP off four successive seasons of deficient or delayed and subnormal precipitation, April, 1921, proved to be a most "unusual" month. Killing frosts occurred on the nights of the 4th, 5th and 6th, followed by a week or more when the thermometer dropped to forty or lower each night, and ending up the cold snap with frost again on the 13th and 14th. Then, as if to make up for the cold spell, during the last week of the month the mercury climbed to a point between 95 and 100 degrees F. on three successive days. A worse combination could hardly have been figured out by the weather man.

CAUSED UNEVEN BLOOM

While the direct injury to the bloom did not prove serious in many districts, the cold weather did cause a heavy shedding of unopened blossom buds which has resulted in a most uneven bloom and in failure to bloom at all in certain instances. The sudden change from protracted cool weather to summer heat, accompanied by desiccating north winds, has not had time as yet to show its full effects. There is much apprehension, however, on the part of citrus growers as to the seriousness of the injury that may have occurred.

EFFECT ON NAVELS

The writer is of the opinion that, all things considered, next season's navel crop may be considerably smaller than this year. Experience and investigation clearly indicate that sudden fluctuations in weather conditions are primarily responsible for much of the June drop of the navel. Greater fluctuations than those occurring during this April and exactly at the period of bloom could hardly have been found. But a short crop might prove a blessing in disguise. Such occasionally has been the case in times past.

## Citrus Institute at Whittier

THE summer meeting of the California Citrus Institute held last year at Santa Ana will be conducted at Whittier during the latter part of June, the directors having accepted the joint invitation of the Whittier Chamber of Commerce and the Whittier Farm Bureau Center.

The nature of the program for this session has not been announced as yet, but undoubtedly will be of such nature as to emphasize the issues of the day. The Whittier district will have a big job ahead of it in surpassing Santa Ana's efforts of last summer.

## Topworking for Increased Production

THIS is a busy season for topworkers, there being an unusually heavy demand for this sort of work. Here and there lemon acreage is being worked over, but most of the topworking being done is in the elimination of off-type or drone trees as a means of cutting costs of production to the minimum by increasing the average yield of the orchards.

The agricultural extension service of Los Angeles County during the past month conducted a series of sixteen citrus topworking demonstrations at which some 700 persons were in attendance. In these demonstrations the bud selection department of the Fruit Growers' Supply Company, which during the past four years has supplied more than a million and a half selected buds to its members, gave its co-operation.

## Bench-Grafting Grapes

WILL you kindly tell me how to start a vineyard with the help of bench-grafting? I have a vineyard on resistant roots and wish to replace missing vines by bench-grafting them as rooted vines. Where can I obtain Fenugreek and bitter vetch?—Emil K. Marquardt, San Martin, Calif.

**Reply by George P. Weldon**

There are two ways in which to grow grape vines on resistant roots by grafting:

First, the resistant vines may be grown in the vineyard where the permanent vines are desired and then grafted according to the ordinary methods of doing this work. In the case of vine grafting it should be done in the early spring just as the sap is beginning to flow. The stems of the vines should be cut just below the surface of the ground and the scions inserted, after which the soil may be banked about the base of the vines, when healing will take place if everything is favorable before banking up the soil. However, it is well to use some grafting wax to seal the cut end of the grafted vine, thus insuring better protection against drying out.

The other method of bench-grafting consists in grafting together the desired variety and a piece of root taken from the resistant species of grape. The method known as "whip grafting" is generally employed in cases of this kind. It is well illustrated on Page 290 of Monthly Bulletin of the State Department of Agriculture, Vol. 7, No. 8, on Pear Growing in California, a copy of which is being sent under separate cover.

Replying to your second question, I will say that vetch seed is exceedingly difficult to buy at the present time. If it cannot be purchased from the leading dealers in seeds in California the possibilities are that there is none available.

An effort is being made now through the Farm Bureau organization of California to induce people to grow purple vetch for seed. Until the supply is adequate it will be difficult for those who are needing this seed for planting in citrus groves to secure it.

*[NOTE: A number of the seed dealers advertising regularly in ORCHARD and FARM have vetch seed for sale this year, and have been advertising it recently.—The Editor.]*

## Seedling Almonds

I INTEND to plant bitter almond seed and then either bud or graft when ready. Can the seeds be planted in permanent orchard formation at once? What are the advantages or disadvantages in so doing? Is it necessary to prepare the seed? When should they be planted, budded or grafted? Planting is to be done on foothills west of Paso Robles on unirrigated land.—Mrs. G. Meldt, Paso Robles, Calif.

**Reply by George P. Weldon**

The method of growing seedling almond trees is practically the same as that used in growing peaches. The seeds may be bedded down in the fall, placing them in a pit about 12 inches deep and of sufficient size for the amount to be sprouted. Fill the pit with alternate layers of seed and sand moist soil until it is full. By keeping plenty of moisture in the pit at all times, one usually experiences little difficulty in securing the germination of a high percentage of the seeds.

In the case of the peach, the work of bedding is done in the early fall, August being the best month, although the work may be continued well into September.

The seeds may be placed in rows where the permanent orchard is to be planted, although nurserymen prefer another method, which requires a relatively small amount of water. Seeds will not germinate unless kept moist. Therefore, the bedding method described is considered more than the sowing of seeds in rows. The seeds generally are put in bedding pits, although good results have been obtained with later bedding. It may be possible to induce germination in the early spring by


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The letter says further: "We ran out of Molasses for several days and found that the cows fell off in milk production about 15 per cent at first, later increasing to about 11 per cent below the flow when Molasses was fed. When Molasses was again fed, the cows slowly returned to the former flow of milk, or nearly so."

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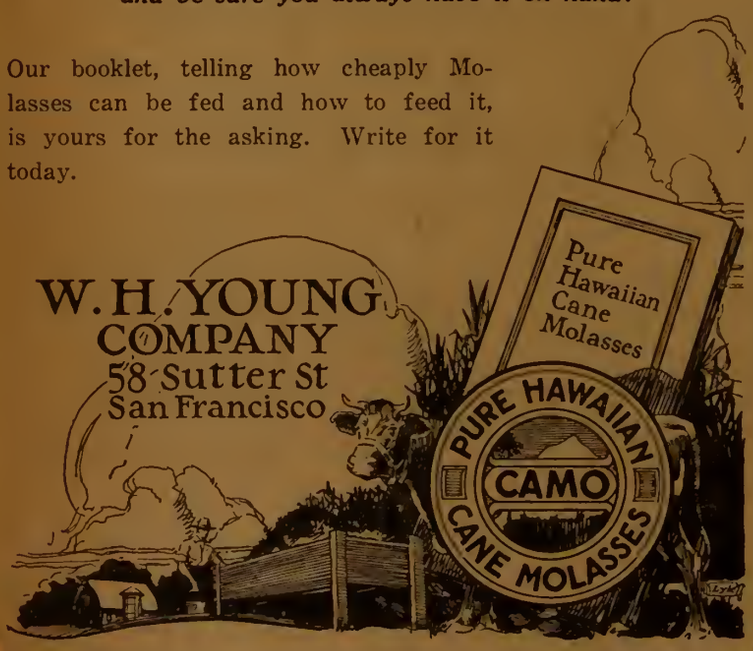


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# The Tubercular-Free Herd

By Dr. J. P. Iverson

(WRITTEN ESPECIALLY FOR ORCHARD AND FARM.)

***EVERY dairyman wants to know how he can bring up a herd entirely free from tubercular infection. In this article, which is a sequel to that published in the May issue, the head of the Bureau of Animal industry tells how to avoid from the start the scourge of the dread white plague.—The Editor.***

CALVES at time of birth seldom are tubercular. This principle has formed the basis for many attempts, successful and unsuccessful, to establish a clean herd with young stock. If the calves are removed from the mother soon after birth and if all products fed to them are sterilized properly, or freed from tubercle bacillus by pasteurization, it is reasonable to predict that they will grow into healthy adults.

However, in attempts to apply this theory, some dairymen have found that diseases of the digestive system serve to frustrate their plans. On the other hand, some dairymen report the plan to have been entirely successful, and in at least one instance where this principle was applied to one of the State-owned herds of California the plan was shown positively to be feasible.

### THE PERSONAL FACTOR

Success seems to depend upon the skill of the attendants in immediate charge of the herd and their ability to cope with intestinal complications by the careful use and variation of the feed given.

If diarrhoea appears the food allowance should be reduced immediately until the condition corrects itself. Small doses of castor oil are indicated if the first suggestion does not prove successful. The cattle pens must be kept scrupulously clean and free from all fermenting and decaying matter, and the utensils from which the calves are fed should be sterilized just after each time they are used. Dirty containers and unsanitary surroundings are conducive to intestinal ailments.

### NO CALIFORNIA LAW

While at the present time we have no tuberculosis eradication law in the State of California and no funds for carrying on this work, and only a very limited attempt has been directed at tuberculosis eradication, there has been an extensive amount of testing practiced under the provisions of the California pure milk law. This testing has served to enable many dairymen, who were clever enough and fortunate enough to bring circumstances to bear upon their individual herd problems, to succeed in eradicating tuberculosis.

### MILK LAW EXPERIENCE

The experience gained in the enforcement of the tuberculin testing provisions of the pure milk law, while primarily intended to protect the health of the consumer of milk (which, incidentally, has been accomplished in a remarkable way) has served to establish a fund of knowledge that will be invaluable in connection with eradicating work.

It has shown that where comparatively little tuberculosis is present in a herd or in any community, eradication is easy, and that where once it has gained a foothold it is extremely difficult and well nigh impossible. It has been shown further that eradication efforts are more successful when applied to a community than to an individual.

### PROPOSED ERADICATION PLAN

This has led to the proposal of certain legislation that would enable the State Department of Agriculture to begin an eradication program in those communities, which include almost three-fourths of the area of the State of California. The free area thus established can be extended from time to time and the area broadened as adjoining dairymen come to desire to co-operate with the department in such a plan, until eventually the disease might be crowded into such narrow limits that a final, complete eradication program would be possible. Then all animals could be tested and destroyed without ruining the dairy industry or impairing the health of the community from undernourishment.

### NO LEGAL HELP

A movement of tubercular stock into a free area frequently is brought to the attention of the State Department of Agriculture, but as the law now stands we are helpless to prevent this destructive practice. With a reasonable force of men to match a similar force that would be supplied by the United States Department of Agriculture, very rapid progress could be made in clearing from infection the first three-quarters of the area of the State.

Summarizing this and the preceding article: The eradication effort that an individual may undertake with respect to his own herd will depend for success upon three points. First, reliable technical advice; second, determination of purpose and perseverance on the part of the owner, and, third, extreme attention to detail by attendants.

## Increasing Clatsop County Cream Checks

(Continued from Page 8)

and gum boots who was cleaning out the stalls where the station director, A. E. Enbretson, might be found.

"Right here," smilingly replied the young man. "Maybe I'm not so young as I look," he explained. "I've been in charge here five years, coming two years after the station was established. We have fifty-five acres of experimental grounds and a herd of twenty Guernseys. We are building up a fine herd of milk stock, gradually working into pure-breds, as are the most successful dairymen in the county.

"This is our herd bull, an imported Guernsey with five daughters holding records of 527 pounds of butterfat at an average age of 3 years and 10 months. The old fellow is on his last legs"—with an affectionate glance at the bovine patriarch—"but if we can get one more calf from him it will be worth hundreds of dollars.

"This is our junior sire, whose dam produced 603 pounds of fat in two and a half years. This calf, May King of Langwater, we value at $500.

### FROM GUERNSEY ISLES

"Here are two animals imported direct from the Isle of Guernsey. You they look rather runty in comparison with our best home grown stock. There is no doubt about our ability to lead the world raising milk cows, due to favorable climatic conditions. Oregon already has many of the prize Jerseys in the United States. The Guernsey breeders here didn't get into the game quite so early—but watch their smoke. There are now about 500 pure-bred in the county, fifty or sixty

[illegible] that year including several [illegible] from the East. The [illegible] of [illegible] breeding stock is bound [illegible] a big industry here.

This is what might be called a cow-[illegible] acre country, since 160 square [illegible] of ground is sufficient to support [illegible] producing cow in comfort. The [illegible] generally followed is to pas-[illegible] during the summer and feed roots [illegible] the winter. Very little hay is [illegible] on account of the difficulty of [illegible] it in such a moist climate. Our [illegible] rainfall is 75 inches; winter [illegible] temperature, 48 degrees; summer, 60 [illegible]. About $70 worth of grain—[illegible] mill feed—is consumed by each [illegible] in the course of a year. Dry stock [illegible] subsist on pasture the year around, [illegible] the grass in winter is too weak [illegible] support a cow giving milk. Besides, [illegible] needs protection from the cold [illegible].

### ROOTS IMPORTANT FEED

"An acre of rutabagas—Swede turnips—will yield forty tons of good feed, [illegible] sufficient for fifteen cows during the [illegible] season. It takes lots of work [illegible] raise roots and dig them, but most [illegible] our dairymen are old-country people or their descendants who are used [illegible] hard work. A similar system of [illegible] is followed in the Scandinavian countries and Finland, where [illegible] of the people here came from [illegible]."

Ensilage would be easier to grow [illegible] harvest than turnips, the director [illegible] on to explain, but it requires [illegible] money to build a silo and equip it with [illegible] machinery—$500 to $800—and few [illegible] farmers have as yet seen their way [illegible] to invest that amount of money [illegible] something they can do without. But [illegible] silos are being built each year [illegible] "cow kraut" is destined to crowd [illegible] the turnip.

"Another thing that is much needed [illegible] Clatsop farms is the cement ma-[illegible] pit," said Mr. Enbretson. "Most [illegible] the soils here lack lime, phosphorus [illegible] humus. Manure therefore can be [illegible] plied to great advantage. The most [illegible] luable portion, however—the liquid [illegible] commonly is allowed to leach away [illegible] is washed out of the stalls as so [illegible] much waste. A pit with roof overhead [illegible] be built for $300 and will take [illegible] of the excrement from twenty [illegible] cows, paying for itself in two years.

### FERTILIZER WITH MANURE

"Superphosphate can be used very [illegible] profitably with manure. It costs $35 [illegible] ton and this amount will cover five [illegible] acres, increasing the yield upwards of [illegible] per cent and paying 100 per cent [illegible] the investment. A good fertilizer [illegible] be made by mixing equal quan-[illegible] of ground calcium phosphate and [illegible] phuric acid. The phosphate may be [illegible] rinkled in the manure pit, as the or-[illegible] acids will in time make it solu-[illegible] Ten tons of manure is all that is [illegible] rally used, although as high as [illegible] tons have been applied.

"Another improvement which could [illegible] great advantage be made in farming methods is in the use of soiling crops," Mr. Enbretson asserted. "We have found," he said, "that the use of supplemental green feed during the latter part of the summer, when grass loses its succulence, will maintain the the flow of milk 25 per cent above what is otherwise obtained. One acre will feed ten cows fifty days, counting thirty pounds per cow each day. The crop need be cut only every alternate day, as it will keep that long in this cool climate."

Peas and vetch make an excellent soiling crop, the director stated. When to these oats are added one has a silo-filler which has few equals, he pointed out. Yields of twelve to fifteen tons per acre, green, are secured at the station on upland ground, the crop standing shoulder high; there is an eighty-ton silo.

"It is very important to plant forage crops early," continued my informer. "In order to grow field peas successfully we have found it necessary to inoculate the soil with nitrogen gathering bacteria. Cultures might be grown cheaply in skim milk and the ground sprinkled.

"By systematic testing work and the elimination of infected animals the county practically has been freed from bovine tuberculosis. Now we are working on contagious abortion. It has been only eighteen months since the discovery was made that this disease could be detected by microscopic examination of blood taken from the animal. One hundred blood samples can be taken in a single day.

### OTHER INVESTIGATIONS

"Much experimental work with potatoes has been done here at the station. Seed was furnished last year to a grower, A. Dejong, who produced 519 bushels per acre, the highest yield recorded in the United States last year. Two hundred bushels is considered a fair yield, although 300 bushels is often obtained. We have a blight-proof variety, but it is not a heavy yielder. Round sorts have proven better suited to hillside lands than the long varieties, such as the Burbank, which is adapted to heavier soils.

"This is a wonderful berry country. From $25,000 to $40,000 worth of wild evergreen blackberries are gathered and sold each year. The vines are so common in the woods as to offer a serious obstacle to the keeping of Angra goats, which are so useful in clearing logged-off lands. All kinds of berries flourish and yield prodigiously, considerably surpassing the Willamette Valley.

"No, I didn't get any increased appropriation from the Legislature this year as the other stations did because I didn't ask for it," concluded the youthful experimentor. "The work here is self-supporting to some extent, for we make a profit on our dairy. A case of eggs was sold the other day in Astoria at the Portland price. We not only show farmers how to make more money, but prove our points by putting the theories into successful practice."

## Storing Meat

AFTER successful curing of a supply of meat, the question of storage [illegible] be considered. This can be accomplished by first wrapping each piece [illegible] rately in good strong paper and [illegible] placing in a cotton or canvas bag. [illegible] have a supply of flour bags on [illegible], these will answer the purpose.

[illegible]w, securely tie the bags and paint [illegible] outside with a coat of white wash [illegible] which some glue has been added. Or [illegible] still, prepare the following mix-[illegible] which has been found superior to [illegible] white wash: 3 pounds of barium [illegible]te, .06 pounds of glue, .08 pounds [illegible] chromate and .4 pound of wheat [illegible].

[illegible] mix the flour with a small [illegible]ty of water to a smooth con-[illegible]cy, then add water to make four [illegible]s. In a separate vessel dissolve [illegible] chromate in one or two quarts [illegible]ter, then add the lead chromate [illegible] and the glue to the flour mix-[illegible] While bringing this to a boil, [illegible] the barium sulphate and stir [illegible]. This solution should be [illegible] day before used.

[illegible]cks can be dipped, and the [illegible]ages put in, or the sacks can [illegible] tied, and the solution ap-[illegible] of an ordinary white [illegible] brush.

[illegible] their contents should [illegible], dry place which is [illegible] stored in this manner should not be disturbed until needed for use, since handling of the dried sacks would cause the coating to break and peel.

## Tile-Trenching Machinery

THE more extensive use of tile-trenching machinery has been brought about by the rising prices and increasing scarcity of labor, and the rapid extension of tile drainage for farm lands to increase crop production.

Tile-trenching machinery may be divided into two general classes—horse-drawn ditching plows and power operated trenching machines.

The ditching plows are comparatively inexpensive implements, costing from $20 to $500, which will excavate trenches suitable for the smaller sizes of tile. Hand labor is necessary to grade the trench after using them.

Power-operated machines are of the following general types: Wheel excavators, endless-chain excavators and those of the drag-line and dry-land, dipper-dredge types. The less expensive power machines, costing from $2500 to $3500, are used extensively on farm tile drainage.

Cost of trenching by machinery, it has been shown, is not greatly different from that of hand-work. The main advantages of machine work over hand labor are the fewer men required and the more rapid completion of the work.


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Cream Separator or Milker

## Rhodes Grass

The following extract is from the U. S. Department of Agriculture Bulletin 1048:

Rhodes Grass was first cultivated because of its pasture value. It bears trampling well, recovers quickly after it is eaten down, and is relished by all kinds of livestock. In pastures favorably located, Rhodes Grass will support about two steers to the acre for 9 to 10 months and double that number during the more favorable parts of the year. The quality of hay made from Rhodes Grass is superior to that of most other grasses in that it contains a larger proportion of leaves, while the stems are slender, tender and sweet, so that the hay is eaten with very little waste. It retains its color well in drying, therefore making an attractive bale for market. Rhodes Grass will grow in alkaline soils where no other grass will grow.

Mr. L. O. Crummer, Brawley, Calif., has ten acres in Rhodes Grass, on which he has kept 400 hogs, 10 mules, 3 cows, besides having two large stocks of hay on hand, cut from his field. He recommends it very highly.

Gus Nellen, Gen. Del., El Centro, has about 8½ acres in Rhodes, on which he has kept 20 milk cows, also some hogs, and has about 12 tons hay left from the last year. His place was covered with Bermuda, so he just broadcasted the Rhodes Grass Seed and turned the water in slowly and kept the place moist, and before long the Rhodes had the Bermuda choked out. Another advantage is that he can keep the cattle on it while irrigating, for it isn't hurt by being trampled on, for wherever the runners are trampled into the ground, they start to grow.

He also recommends it highly for hog pasture, as they like it very much and do well on it.

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*READ IT—REFLECT ON IT—IT PAYS*

**ORCHARD and FARM**


# Culling of Leghorn Hens

By F. E. La Shelle Jr.

Part II—General Points to Consider in Securing Good Layers

A GOOD layer should have the best of health, vigor and vitality, and this is best indicated by bright and active movements, friendly but elusive manner, and generally healthy appearance. She should be a good rustler, in order to obtain sufficient food for high production. Low vitality stock cannot withstand the strain of high production. Generally speaking, the fowl that is off the roost early and goes to roost late is better than the one which is lazy and sluggish.

Mr. La Shelle

The sensitiveness of the internal mechanism of the hen will be revealed by the refinement of the head, which should be distinctly feminine. "Crow's head" type fowls are not vigorous birds. The eye should be well rounded and prominent when viewed from the front, and should be oval, showing a portion of the white membrane in front of the eyeball, when viewed from the side.

The comb and wattles should be well developed for the breed, but not abnormal in size. Changes in size of the comb will depend somewhat upon the condition of the ovary. The circulation of the blood during production is great, and a well developed bright red comb is the result. The larger the comb the better the layer, other points being equal.

### THE BODY SHAPE

The body shape should be nearly rectangular when viewed from the side. Width of body, with a deep chest and abdomen is desirable in order to give plenty of capacity for the proper functioning of the internal organs. Erect-standing hens with "cut-away" breasts or abdomens are not desirable. Deformed birds should be disposed of.

### ABDOMINAL POINTS

The pelvic or pin bones should be thin and straight, flexible, and with sufficient distance between them to permit the passage of an egg. The distance between the pin bones increases or decreases according to the season of production. As a hen ages, however, the pin bones have a tendency to thicken.

Hens that have a capacity (distance between the pelvic bones and the end of the breast bone, measured by the fingers) of three fingers should be saved, other points being favorable. Any measuring less than three fingers should be discarded. Capacity is necessary in order to give the fully developed reproductive organs room in which to work.

A corresponding shrinkage of the tissues takes place when the egg organs decrease in size and require less room for the manufacture of eggs. One must bear in mind, however, the fact that any hen that is laying (at a profit or not) will develop in time enough capacity to pass inspection. A large capacity is necessary for any appreciable production, but does not necessarily indicate a profitable producer.

The abdomen of a good layer should be well rounded, soft, pliable and lifelike to the touch. A pinched and puckered or round, hard abdomen is not desirable. Some authorities state that the capacity indicates the speed of yolk development, and that the condition of the abdomen indicates persistency of laying. The vent should be moist and dilated.

### YELLOW COLOR TEST

Leghorn hens store up yellow pigment under the skin surface, giving the skin and shanks yellow color during the period of lowest production. During production the fowl draws on this supply and uses it to assist in coloring the yolk of the egg. This surplus color or fat is used to such an extent that the fowl has a pale appearance during the period of heaviest production.

During the summer months this color test is more valuable than at other times of the year, because the hen is nearing the end of the season of high production, and she has "laid out" most of the color.

The color changes are especially noticeable in the vent, eye-rings, ear lobes, beak and shanks, these points bleaching out in the order named.

As the size of the bird, age and feed used will influence the color of the skin, the poultryman must make a comparison on color of the individuals in the pen rather than a comparison between pens.

### CONCERNING THE MOULT

Comparative tests between the moult and trapnests have proven beyond a doubt that the late fall moulter is the profitable hen. The late moulter will lay longer and spend less time in growing new feathers. A hen moulting late in September, October or November is a better hen than one moulting earlier.

A hen entering the moult with ragged, soiled feathers, lacking in luster, is a better hen than one entering a moult with sleek, clean-appearing feathers. The former hen shows that she has been a worker.

### BROODINESS UNDESIRABLE

Broody hens are profit eaters. As a general rule a broody hen will become broody again after being broken from the first inclination. She wastes time and money unless she is allowed to set. Large poultry plants cannot afford to keep persistently broody hens.

(Mr. La Shelle's articles are presented through the courtesy of the Sperry Flour Co. Watch for more in future numbers.)


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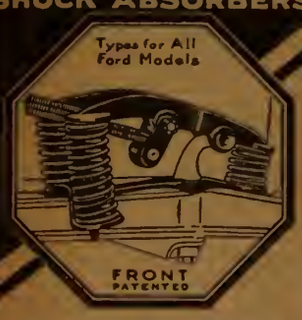


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# How to Conquer Garden Enemies

By Charles L. Schufeldt

AS SOON as the plants appear, a careful watch should be kept for insect or disease trouble. Plant lice and aphis will seriously damage cabbages, cantaloupes, cucumbers, peas and other plants of these families unless controlled immediately. If attention is not given until after the plants show injury, the insects will increase so fast that usually it is impossible to save the plants.

Chas. L. Schufeldt

Early attention also should be given to squash bugs, cucumber beetles of either the striped or spotted sort, spider mites which infest beans and some other plants, and the cabbage worm. For the aphis, use soap suds to which has been added an ounce of 40 per cent nicotine solution to every seven gallons of the suds. With this must be applied as a spray to the under surface of the leaves, and to all surfaces on plants infested by the aphis. For cabbage worms use a spray of one half ounce powdered arsenate of lead in a gallon of water. As this solution is poisonous it should be used before the heads begin to form.

For cutworms and slugs, snails and wireworms, take two quarts of wheat bran and thoroughly stir into it while dry an ounce of paris green or Lead arsenate, much powdered arsenate of lead, mixed, moistened with water. Place this in a row around the plant or along each side of the row.

that the pest must cross it to reach the plants. Use this also for grass-hoppers and any caterpillar which inhabits the ground but works on the surface.

For the spider mite which causes the beans and other plants to look rusty, use finely powdered sulphur or flower of sulphur mixed with an equal amount of air-slaked lime or flour. Sift this mixture over the plants early in the morning when they are damp. This also is excellent for any species of mildew on garden plants, grapes, roses, etc.

For corn worms sift powdered arsenate of lead (half flour or lime) over the points of the ears of corn when the silks begin to emerge. The young worms hatch here and thus may be immediately rendered harmless. The squash bug and cucumber beetles cannot successfully be poisoned. Hand-picking, as early as possible, is the best remedy. However, wood ashes or air-slaked lime sprinkled over the when damp, and on the ground beneath, will help as a repellent. A wide board laid between the rows at night and raised in the morning often will reveal many cutworms and slugs which can be killed.

## Miscellaneous Tips

**Constant, Steady Moisture** is better than intermittent moisture with intervening drouth conditions. Whether soil holds its moisture a long time or gives it up to the air quickly or drops it down too deep for plant roots depends upon a number of conditions. Sandy soil containing little humus from manure or decayed vegetable matter will dry out quickly. Any kind of soil holds moisture more steadily if it is well supplied with humus. Even green grass and young weeds are good humus-makers. Avoid plowing down thick, old clumps of dry straw and woody, mature weeds, however. They are apt to ammonify or heat before rotting and this will drive ammonia or nitrates out of the soil. Always give the soil a good supply of water after turning under a green cover crop or any other organic matter. This insures quick decomposition and prevents ammonification.

**Pumpkin Pie From Panama Squash** is better than the "real article," some gardeners say. The best squash known for all purposes to eat young as summer squash and keep all the year when matured on the vine, is this same "banana." It is best baked, and is good boiled. It beats the good old Hubbard and is about twice as prolific. Give it plenty of room. We plant it with our potatoes in March and let it take the ground after the potatoes are dug. (It would be in the way if the potatoes were dug with a digger.) It can be grown in the corn the same as pumpkins. Don't dig a hole and put manure in the hole, then the dirt, then the seed! Fertilize all the soil, but not in one spot convenient for the plant.

**Adobe Soil** is very dry. Often there is only a single day between the time when it is too wet and when it is too dry to cultivate. Lime one-half to an inch deep all over the adobe and worked well down a few weeks before planting will help to make it loose. Coarse manure helps also. It pays to take extra pains with adobe.

**Deep Rooting** may be encouraged by allowing the plants to go deep and far for food and moisture. Let them establish a strong, vigorous root system. We do not make their struggle so hard as to retard their growth. It is not always the plant which makes the biggest growth at first that gives the best returns at harvest. However, if one can secure a rapid early growth, and can keep it up without a halt and can have root and leaf surface well-balanced at all times, he has achieved the ideal. A big root system cannot be secured by watering close to the plants. If ditch or basin system is used, move the place of application of the water gradually away from the stem of the plants as it grows, or widen the cover which water is applied.

**Cultivate Between Irrigations.** Although [illegible] shingle [illegible] have to irrigate [illegible] intervening cultiva-

[illegible] of a poor [illegible] garden.

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FREE BOOK Write Today

# HELPFUL HINTS for THE HOUSEWIFE

Edited by Isabel Sinclair

The lark's on the wing;
The snail's on the thorn:
God's in His heaven—
All's right with the world!
—Browning.

DEAR FRIENDS: The perfection of June days! Are we not glad of the right to a place in which to work and accomplish?

June—the month of weddings, vacations and day-dreams along with the work!

It is pleasant to contemplate these things, but just to be a bit prosaic I want to make some suggestions about curtains, and I am sure most women will agree that nothing adds more to the livable appearance of a room than attractive draperies.

Of course, the first thing to remember is the mission of the window; to admit sunlight and air, and provide a frame for Nature's picture. For where one can look out over a broad expanse of ripening fields, or to the distant mountains, or down a road, by all means let the window become a picture of out-of-doors, merely softening the frame with curtains. A pleasing vista of the world outside, if only for a moment, brings variation into the everyday duties of home-making.

The styles of windows are many, but the casement, though difficult to curtain attractively, is undoubtedly the most popular in California. Where there are a number of such windows in a row, a pleasing result may be obtained by fastening the curtain rod across the entire length of the group at the top, about twelve inches above the window frame. On this rod may be gathered a 12-inch valance of the desired material, finished at each end of the group and between each pair of windows with a drop curtain, gathered back so they will not interfere with summer breezes nor obstruct the view.

One charming arrangement for the bedroom has a valance across the top, and side curtains of dainty pink and white checked gingham, with inside curtains tied back of sheer dotted net with ruffled edges.

The crisp freshness of gingham makes it most desirable and then, too, besides laundering beautifully, it is not faded by the sun. Any desired color scheme may be carried out. Gingham also is delightful for the kitchen, and one may use only the side curtains and valance, omitting the inside drapes. Variegated conventional gingham flowers may be appliqued with black thread in stiff little bouquets or baskets in the corners.

In the living and dining rooms, soft silk side drapes and inside curtains of plain sheer net, preferably cream, are most pleasing. There are many other attractive combinations which I have not space to describe, but with a little study one can have charmingly curtained rooms. And how much you will enjoy letting inside the rooms a bit of the beauty of the out-of-doors.

Sincerely,

Isabel Sinclair

## Orange and Apricot Marmalade

TO a quart of canned apricots add three cups of sugar and let simmer over a slow fire. Cut the rinds of three fresh oranges into narrow strips, cover with water and cook slowly for ten minutes. Pour off the water and cover with fresh water; repeat, and cook slowly until tender. Then add a half cup sugar and cook ten minutes; add one orange cut in small pieces and the apricots, cooking slowly about half an hour until juice is thick.—Miss M. E. McDaniel, Templeton, Cal. (H)

*The Home is the Hub of the Universe*

## Modern Methods in the Kitchen

### Martha May Describes Some of the Wonderful Improvements in Cooking Utensils

I AM too enthusiastic for words over the lovely cooking utensils, baking dishes and cookers that have been introduced at Cooking School, even though I am only a beginner in my teachers' course in domestic science. All of the equipment is so modern and up-to-date that efficiency fairly radiates from the big cooking room, and the practicable labor and time-saving devices installed easily can be placed in the kitchen of any home. How I wish I could tell everyone what a pleasure work can be with the aid of such efficient "servants."

I am simply in love with the glass baking dishes we are using. They are so clean, shiny and altogether appetizing looking, and some of them are ornamented with the cut glass design, making them very attractive to place right on the table as they come from the oven. (And think of all the dishes such an arrangement saves.) Their good qualities are many, for they never discolor, chip, and, of course, cannot rust. And the food does not stick to the high glossy surface. Although baked foods are very nourishing and appetizing, at home I dislike to cook anything in the oven, for the food always bakes into the pan in such an adhesive way.

When baking cake and bread in the glass baking dishes, it is possible to watch them bake on the bottom as well as on top, and there has not been a single burnt cake at school since they started to use them. Of course, the same is possible with vegetables, meats and everything prepared in this manner. We now have just about every shape and size of utensil, including bread bakers, casseroles of different sizes, custard cups, pie plates, pudding dishes, ramekins and even a bean pot.

These glass dishes are extremely durable and will withstand the hardest kind of usage, as the composition of which they are made makes them practically unbreakable. Then, too, the manufacturers guarantee them for one year against cracking in the oven.

PRESSURE COOKER PLEASES

The other addition to our equipment is a pressure cooker—something I have heard much about but never really became acquainted with until recently. Mother and I simply must have one as soon as possible. The fourteen-quart or large family size is used at school, and the other day we cooked a whole meal in a cooker, consisting of flank steak, potatoes, creamed carrots and prunes, the latter for prune whip the next day. We first seared the steak in the bottom of the cooker to make it nice and brown and to retain the juices, then seasoned it and put in the potatoes and a quarter of a cupful of hot water.

Next the carrots were put into a pan with about a tablespoonful of water and placed on the rack over the meat and potatoes. Lastly, the dish of prunes, which had soaked for an hour, was placed on the top rack and the lid screwed in place. When the little hand on the dial indicated a steam pressure of twenty pounds we turned the gas down to a mere pin-point of flame and allowed the food to cook for ten minutes in this manner, then turned the gas out entirely and left the food in the cooker until the pressure ran down. When the lid was removed there was the whole meal deliciously cooked, and all in less than twenty minutes! Why, I could hardly believe it, when at home in order to have supper at six, and we desire to have a chicken or roast, we must start at 3 or 4 o'clock in the afternoon. But with a pressure cooker only from forty-five minutes to an hour is required to cook a roast or chicken!

Just think of all the time saved—time mother and I could spend to so much better advantage than standing over the kitchen stove. And then, too, think of all the fuel saved when only a third, or two-thirds, of the cooking time is required and only one burner is necessary for the entire meat instead of three. I can easily see where the cooker will pay for itself in ninety days, as is claimed, especially if gas is used for fuel.

The demonstrator told us it takes on the average ten minutes per pound for meats. Fresh vegetables will cook in ten minutes, navy beans that require three hours' stewing will be deliciously palatable in thirty minutes, and the toughest meats require but forty minutes. It always seemed plausible to me that the best and most nutritious elements of food were cooked off and wasted in the ordinary method of preparation. But with the pressure cooker every ounce of nutriment is retained and the flavor increased wonderfully, making less seasoning necessary. Very little salt is required as well as sugar, butter and other seasonings.

ONIONS AND POTATOES

One of the girls asked if the flavor of one vegetable would not permeate the others when cooked together. But the instructor proved that onions and potatoes could be prepared in the cooker and the potatoes would be entirely free from any onion flavor whatever by letting us experiment. The potatoes were deliciously flaky and the onions retained their globular shape and were so juicy and tender that every one voted for at least two menus a week with onions in the stellar role.

I can hardly wait to initiate father and mother into the mysterious deliciousness of pressure-cooked foods, but as they have consented to come to our monthly supper, I am sure it will not be long before we, too, will be cooking our meals with steam, for father is a connoisseur as well as the autocrat of the family board.

Nutritiously yours,

Martha May

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Don't throw away any more household or cooking utensils account leaks in them, as a South Dakota man has discovered a harmless powder which after being mixed into putty form becomes hard as stone and successfully mends leaks in Agate, Graniteware, Aluminum, Copper, Brass, Iron, Tinware and Plumbing. Even a child can mix and apply it as it requires neither heat, acid nor tools, and will not melt.

In order to prove its great value to every reader of the Orchard and Farm he offers, if you will write within one week from date you receive this paper, to mail you one large regular full size 50-cent package of this Mend-a-leak powder, with full directions for mixing and using, enough to mend 30 to 40 ordinary leaks, by return mail for only 25 cents or three packages postpaid for only 60 cents, silver or stamps. If silver is sent, wrap well in paper and use strong envelope. Or six packages postpaid for only $1.00. Guaranteed as represented or money refunded. Address all orders to Allen Watson, B233, Farmingdale, South Dakota.

This should be a big money-getter for live agents.—Adv.

# PRETTY COSTUMES
## Selected by Isabel Sinclair

*These costumes are simple and can be made readily by the home dressmaker from the instructions provided. Send 15 cents in silver or stamps for each pattern desired. Address Pattern Department, Orchard and Farm, 1111 South Broadway, Los Angeles. Give full name and address.*

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**3595—Girl's Bloomer Dress**

Cut in 4 sizes: 4, 6, 8 and 10 years. An 8-year size will require 2¾ yards of 32-inch material for the dress in bloomer style, with [illegible] skirt, 2⅝ yards. Price 15 cents.

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Blouse 3599 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. It requires 3 yards of 36-inch material for 38-inch size. Skirt 3606 cut in 6 sizes: 24, 26, 28, 30, 32 and 34 inches waist measure. A [illegible]h size will require 3 yards of 44-inch material if cut crosswise, and 2½ yards if cut lengthwise of the goods. The width of the skirt at the foot is about 3 yards. Two separate patterns, 15 cents for each pattern.

**3110—Apron and Cap**

Cut in 4 sizes: small, 32-34; medium, 36-38; large, 40-42, and extra large, 44-46 inches bust measure. Size medium requires [illegible] yards for the apron and ⅞ yard for the cap of 36-inch material. Price 15 cents.

**3617—Lady's House Dress**

Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38-inch size will require [illegible] yards of 24-inch material. The width at the foot is about 2 [illegible]

**[illegible] Dress**

[illegible] years. A 4 year size will require [illegible] yards of 27-inch material.

**3601—Boy's Suit**

Cut in 4 sizes: 2, 3, 4 and 5 years. A 4-year size will require 1⅝ yards of 24-inch material for the blouse and 3 yards for the trousers. Price 15 cents.

**3114—Lady's House Gown**

Cut in 4 sizes: small, 32-34; medium, 36-38; large, 40-42, and extra large, 44-46 inches bust measure. Size medium requires 5¾ yards of 36-inch material for garment in full length, and 4¼ yards for sack length. Price 15 cents.

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# Mr. Opportunity Seeker

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Under modern intensive cultivation crop returns of from $500.00 to $1000.00 per acre are more often the rule than the exception. The price, too, of the land has risen and sales at $1000.00 and over per acre are no longer uncommon.

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About four and one-half miles from Porterville, in one of the most prolific and beautiful parts of the Valley, are 700 acres of land of which every foot is a deep, rich, fertile, alluvial loam, free from alkali. There is an abundance of pure water from shallow wells, with a lift of less than 25 feet, and electric power can be obtained.

All kinds of deciduous fruits, figs, grapes and nuts grow to perfection, and can be interset with cotton, corn, melons of all kinds, tomatoes, beans, peas and any garden crop. Alfalfa produces from ten to fifteen tons per acre.

The Porterville Chamber of Commerce, after inspecting this land, says: "THIS PARTICULAR LOCATION HAS BEEN PROVEN TO BE THE FINEST GRAPE LAND KNOWN IN CALIFORNIA."

When O. W. Lehmer, President of the Farmers & Merchants National Bank of Merced, and Vice President of the Yosemite Valley Railroad, looked over this land with us and we told him of our plans, he remarked: "IF THIS DOESN'T SPELL OPPORTUNITY TO ANY MAN WITH AN OUNCE OF RED BLOOD IN HIS VEINS, THEN MY TWENTY-FOUR YEARS' EXPERIENCE IN THE SAN JOAQUIN VALLEY HAS BEEN ABSOLUTELY WASTED." Then and there we decided to call this OPPORTUNITY ACRES.

If you have that ounce of red blood in your veins, if you want to be independent of some other man's favor or whim for your living, if you want to be your own boss, or if you want to make an investment that is even safer than Government Bonds—THIS IS YOUR OPPORTUNITY. Will you grasp it?

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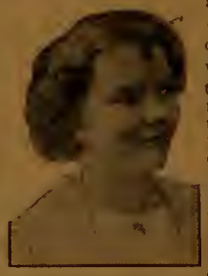
# YOUR GARDEN of FLOWERS

*by Helen Temple*

The green earth sends its incense up
From every mountain shrine—
From every flower and dewy cup
That greeteth the sunshine.
—Whittier

## Success With Ferns
## Part II.—Propagation

FERNS propagate by four different methods—spores, bulbets, division and runners. The first method is the principal means of propagation, though a few of the species do not produce spores, in which case one of the other methods must be resorted to. The spores form on the back of the fronds and should be gathered when ripe, allowed to dry for a week or ten days, then sown in flats or pans. The propagation soil for ferns must be porous, and equal portions of leaf mold, clean sand and garden loam, sifted, with a layer of gravel for drainage, is ideal.



Helen Temple

The soil must be moistened thoroughly, the spores sown evenly over it and then covered with glass, which should not be disturbed until the spores have germinated. The propagation pan or box, in which a few holes should be drilled, may be placed in water for a short time to provide moisture.

The temperature of the propagation box should be kept even and never allowed to fall below 55 degrees F. When the plants have developed a second leaf it is safe to transplant them to two-inch pots filled with equal portions of leaf mold and sand. In most instances they do not need repotting for a year. Ferns do not need large pots. In fact, they do best when their roots are crowding the pot, if given an abundance of plant food.

The young plants must be hardened gradually. After transplanting keep them under glass in an even temperature. When they have developed into real little ferns they may be transferred to the greenhouse or taken into the house for the fern dishes. Before transferring the plants lift the glass cover daily for a period, lengthening it each day until they are accustomed to the outside air.

### FERN ENEMIES

When ferns grow luxuriantly and never are allowed to become dry, they are seldom attacked by pests. However, if they become dry, they lose strength and consequently scale and red spider attack them, causing the foliage to turn yellow. Where there is not enough circulation of air and the plants are crowded, mealy bug and black slugs attack them. To eradicate red spider, syringe the plants on the under side of the fronds with a strong spray of water several days in succession.

Scale can be eradicated by washing or dipping the plants in the soap and water solution, then rinsing in clean water. Repeat within a week or ten days. "Black leaf 40" also is used for scale as well as aphis. Dilute according to directions. Lime sprinkled over the soil will drive slugs away. When ferns are attacked by mealy bug, repot in clean soil and a larger pot and change location.

## Building Fern Rockeries

MANY gardeners prefer rockeries for outdoor ferns. These are easily constructed and make very pretty spots in the garden. Place large pieces of porous rock on top of the soil. Fill the crevices between the rocks with leaf mold and sand. The largest variety of ferns, such as the Tree fern, should be planted in the center, with Sword ferns, Pteris, Woodwardia, Polystichunn, Osmunda and Polypodium filling in. Then arrange the smaller groups of fern, such as the Maiden Hair, Five-fingers, Blechnum and Aspidium Tsussimense. Use native ferns against rocks. Often it is desirable to give color to the rockery and if begonias, hydrangeas, lilies, rhododendrons, cinerarias, forget-me-nots and azaleas are planted among the larger ferns, they will furnish color and break the monotony of green at different seasons of the year. Avoid regularity in the planting of fern groups.

A fern rockery or bed must be protected. An inner court, an angle at the north or east of the house, or a corner of a stone fence, provide ideal locations. An oak tree will furnish an excellent spot, as the California oaks are natural shelters for the fern families.

Pools or fish ponds in the garden are improved by planting a few of the larger ferns, such as the Woodwardia around the edge. Care must be taken to provide good drainage. Window boxes on the north or south of the house are very attractive if they contain a few hardy ferns such as the Bostons, Sword fern, Brackens, Asparagus fern and Coffee fern.

All hanging basket ferns should be hardy. Line the basket with moss, fill with three-quarters leaf mold and one-quarter clean sand and cover with wet moss. Immerse basket in water once a week.

## June Planting

IN THE interior it is too late to do much planting, but seedlings should be transplanted as soon as possible. In the coastal and semi-tropical regions, petunias, cosmos, phlox, centaurea, candy tuft, cineraria, digitalis, daisies, poppies, sallglossis, gillardias and coreopsis may be sown with safety. It is not too late to plant cannas or gladiolus.

## Questions and Answers

WHAT shall I use to lighten sticky adobe soil?—Mrs. G. G. T. Graham, Cal.

To make sticky adobe more friable spade under large quantities of manure each fall before the rains until the soil shows results.

How can I start camellias, both with seed and cuttings? I would like information regarding them.—Mrs. M. E. P. Ontario, Cal.

To start cuttings, take wood of last year's growth, remove all lower leaves and plant in a box of sand. Keep warm, but protected from direct rays of sun. Provide constant moisture. As soon as the roots are well established plant outdoors. Protect from heavy winds and provide a slight shade for some time. To start camellias from seed, sow in sand in seed box. Keep moist and warm under glass. Camellias grown from seed seldom produce satisfactory shrubs, usually producing inferior flowers and foliage.

Please give me information regarding the care of house palms. Is it necessary to give them a bath with castor oil?—Mrs. Chas. P.

Palms should be wiped off with a damp cloth occasionally. Although the oil is not necessary it gives the leaves a higher gloss. Use a pure, sweet oil. Palms should be watered abundantly at all times except during the winter. They need little pot room. If necessary to repot, do so in early spring. The best soil for palms is two-thirds old sod and leaf mold and one-third well rotted cow manure. Keep them in an even temperature not colder than 60 degrees F. at any time.

**Would Not Miss a Copy**—"Will you kindly send me a copy of the December issue? I find something valuable in every number, and feel that I cannot afford to be without even one issue of your valuable paper."—J. W. Suderman, Shafter, Cal.

# BOYS AND GIRLS
## Their Work and Play

In childish days! O, memory,
You bring such curious things to me!
—James Whitcomb Riley.

### Story Contest Winners

THE Contest Editor received so many interesting stories that it was very hard for the judges to decide which were the winners. However, after going over the different entries with the greatest of care, they chose the following three:

**First prize, Richard Wileman, San Gabriel, Cal.**
**Second prize, Albert Williams, Sutter Creek, Cal.**
**Third prize, Rita Allen, San Diego, Cal.**

The following were given honorable mention:

Helen Dewey, Fairoaks, Cal.; Mable Anderson, Alhambra, Cal.; Roy Sands, Inglewood, Cal.; Curtis Welsh, Tracy, Cal.; Floyd Heart, Ojai, Cal.; Robert Chester, Oakland, Cal.; Alice Miller, Stockton, Cal.; Martin Bush, Yuba City, Cal.; Martha Anderson, Fresno, Cal.; Harry Jenkins, Calistoga, Cal.

### Do You Know—

WHAT the Cassin Vireo is? Well, it is a beautiful olive-green bird, with large eyes, white eye-ring and beautiful song, and is found in our thickly wooded districts. It builds a hanging nest usually at the very end of a branch, so that it swings with the wind, and might have been the original cradle of the old nursery song, "Rock-a-bye Baby." It has a very peculiar habit of adorning its nest with spider egg cases. The song of the Cassin Vireo is recognized easily because of two or three notes given in a rising inflection followed by a descending inflection, thus giving the effect of a question and answer.

### Raising Rabbits and Puppies—First Prize

FOR quite a while I tried to think of some way by which I could make spending money. I always liked pets, and when our dog, Queen, had a litter of puppies a friend of ours saw them and took such a fancy to one of them that he offered to buy it from me, and suggested that I try and sell the others, as they were such pretty puppies and came from good stock.

I showed them to other friends and acquaintances and sold another one. They were born on Good Friday, so I called one of them Friday and the others Jack, Wrinkles, Whiskers, Patty, and the runt Jeff. I get $5 apiece for them.

I also bought some rabbits and have been raising little rabbits, which I sell for 75 cents each. The mothers' names are Patsy and Jill. They are very easy to take care of and it costs practically nothing to raise them.

The puppies and rabbits are great playmates, although the puppies are inclined to be a little too friendly at times if I don't watch them.—Richard Wileman, San Gabriel, Cal.

### The Wisdom of Tab—Second Prize

A FRIEND of mine has a large yellow cat named Tab. When but a tiny kitten, Tab's mother died and he became an orphan. But contrary to the rule governing most orphans, Tab had a nice home and a very kind mistress who petted him a great deal and fed him sugar and raisins, of which he soon became very fond. He would mew for hours if he did not get his daily portion of sugar and raisins when he thought he should.

Tab's mistress took much pleasure in teaching him tricks which never took him long to learn. But there was one which he learned of his own accord. He slept on the back porch in a box. The kitchen door opened by means of a latch that had to be pulled down. There was also a large handle arrangement on the door to open or shut it.

When Tab wanted to be inside the house, he could not reconcile himself to staying on the porch, so learned to jump up on the handle and pull down the latch. The kitchen door would fly open and Tab would walk in. He did the same thing from the inside.

Whenever I would go over to the house, Tab would come out to meet me and follow everywhere I went. I always wished he had had a twin brother, for I would like to have had such a pet myself.—Albert Williams, Sutter Creek, Calif.

### "Tis"—Third Prize

MY father had a chicken farm in New York State before we moved to California, and one cold morning when a blizzard was raging, the man who bought chickens from us each week drove into the yard. Father asked him to come inside and get warm, and before removing his overcoat, he took from the pocket the queerest and tiniest dog we just about ever saw.

He had the markings of a brindle bulldog, and his head was shaped like a fox terrier's. He was so cute I wanted to buy him, but the man said he would give him to me. He was so odd looking that somehow dog names did not suit him, and so we called him "Tis."

Tis became a great pet and he was a fine watch dog. He never bit anyone, but no person ever came into the yard that Tis did not announce. He seemed to understand everything that was said to him, and only needed to be punished once for wrong-doing. But we never could teach him tricks. He simply refused.

Tis seemed to love the baby chicks and would lie down and let them walk over his paws. He never tried to eat them. One night we heard a great commotion in the hen houses. Father arrived just in time to see Tis chasing a mink on the road. Father's pen of [illegible] chickens for which he was [illegible] over the East, had been [illegible] thoroughness.—Rita Allen, San Diego, Calif.

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# The Light and Power Situation

By A. G. Wishon

VICE PRESIDENT AND MANAGING DIRECTOR, SAN JOAQUIN LIGHT & POWER CORPORATION

THE misunderstanding of the power company and the power company's problems as viewed in your article "The Farmers Want to Know" (March, 1921, number), I believe is very amply explained in an article under the title, "A Square Deal for Public Utilities" appearing in [illegible]'s of March, 1921, which says:

"There is an explanation somewhere of the lack of good will shown by the average [illegible] toward the public utility companies [illegible] light, heat and power [illegible] we find, has never been [illegible]. If the power [illegible] were [illegible] and [illegible] two [illegible], and [illegible] we would be apt [illegible] feeling toward [illegible]."

[illegible]

A Fair Field

*THE columns of ORCHARD and FARM are open to discussion of both sides of any legitimate controversy vitally affecting its readers. We are glad to give space, therefore, to this communication from Mr. Wishon, and will welcome comment or criticism from our readers. The California Farm Bureau Federation is engaged in investigating the power situation and the farmers have presented their case before the State Railroad Commission. This article, therefore, is timely and worthy of careful consideration. — Editor.*

[illegible]

BETTER PUBLIC ATTITUDE

[illegible]

The rate of return to the stock and bondholders is limited by law, but it is up to the directors and officials of the power company to make every effort to earn this rate of return for the stock and bondholders. No return is guaranteed—it must be earned. The officials are merely trustees, acting for the shareholders, according to rules and regulations of the state, counties and towns in which the company operates.

The profits that ensue from the power development do not accrue to the power corporation, but to the [illegible] farmers, manufacturers, and those receiving the benefits of the [illegible].

The total net annual earnings of the power company are based upon physical values. That is to say, the value of each piece of property used and useful in the [illegible] of our [illegible] the [illegible] in power houses during 18[illegible] to 1[illegible]7 and other years long past, when material and labor were cheap is still just one hundred cents, and no more.

Is there a farmer in the San Joaquin Valley who can truthfully say that his lands and his cash investments have not advanced [illegible] dollars invested [illegible]

[illegible]

COOPERATION NEEDED

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the supreme confidence necessary to induce the man with the money to bring us the much-needed capital. He never invests in an industry battle-torn, full of discord, doubt and suspicion.

When the power company is attacked, the farmer who is served by the power company is the ultimate loser, along with other consumers, because the capital necessary for power development becomes shy and will not invest, consequently a higher rate must be paid for the necessary capital and the farmer must pay this higher cost of money in a higher power rate.

A vote of confidence in the power company makes it easier to float the stocks and bonds of the company and results in a lower money cost, which in turn will ultimately be reflected in a lower power rate.

Let the farmer invest in a block of power stock, the dividends from which will pay his light and power bills. The farmer then becomes a producer of power because he has gone into partnership with the company that furnishes his power and has joined a strong co-operative movement to lower his power rates.

More power to the farmers can come only from more power development by the power companies. For this reason the power companies should be encouraged. More power to the farmers will come with more co-operation in the sale and distribution of the produce the farmer raises.

Co-operation comes to the farmer when he in turn co-operates with the business interests that help him.

The most potent co-operative organization in the State today is the California Associated Raisin Company—a clean-cut corporation composed of stockholders who grow raisins.

The answer to the farmers' problem, it appears to me, is co-operation and corporation.

## Radium as a Fertilizer for Plants

FOR several weeks the newspapers and magazines throughout the country have contained accounts of the visit to America of Madam Marie Curie, the discoverer of radium.

As the centuries roll by perhaps no more important discovery in the realm of human progress ever will be made than that of the frail Polish girl in her obscure laboratory in Paris.

Radium, while comparatively a recent discovery, has been the subject of more publicity than any other element or substance as yet uncovered. That it was discovered by a woman and that her discovery was awarded the Nobel prize of $40,000, and that it was heralded as the greatest scientific discovery of the century, are in themselves but mere incidents in the history of this extraordinary substance, for locked up within that mysterious element are secrets of tremendous importance to this world

### A VALUABLE MEDICINAL AGENT

Radium, up to the present time, has been used principally in the treatment of disease and relief of human suffering through its stimulating effects on the nerves, tissues and blood cells of the body. When applied in its more highly concentrated form a large measure of success has attended the use of radium in cases of cancer and other malignant growths. Yet this is not all, for this same force exerts a remarkable influence on plant life.

In the process of extracting radium from the original ore usually there is a small amount of the element left in the residues. When this substance is mixed in the earth, wheat and barley have been found to grow with great rapidity, while the leaves become somewhat darkened. Radishes, turnips and carrots have grown to several times the usual weight in the presence of radium.

### EFFECT ON FLOWERS

Recent experiments conducted in England with a view of determining the exact status of radio-activity as a fertilizer have demonstrated that flowering plants treated with a small quantity of these residues will bloom earlier and take on a more rugged growth than similar plants not so treated.

Other tests have shown such results as to warrant the belief that when radium residues once are incorporated in the soil its effects will remain practically constant for ages.

It may be that the energy of radium acts beneficially on animal as well as plant life. Some experimental facts point to this, and, if this be true, does it seem like an exaggerted statement to say that in this strange substance or form of energy called radium we have an inherent force which will stimulate the life principle in all living things?

The writer is now making several tests with radium residues and radium-bearing ores on various forms of plant life and in due time hopes to have further details to impart on the value of radio-activity as a fertilizing agent.—M. L. Degnen.

## Effect of Present Freight Rates

BRINGING out in bold relief the importance of the "Save the West" campaign, inaugurated by producers of high tonnage per acre commodities to secure lower freight rates, facts and figures showing the dire straits of these industries were presented before Henry J. Ford, special representative of the Interstate Commerce Commission at hearings held in various cities on the Pacific Coast.

The "Save the West" campaign, which has the united support of farmers, commercial, business and civic organizations is aimed toward radical amendments to the Transportation Act of 1920, which guarantees to all railroads a net earnings of 6 per cent on their values. It is the belief of those leaders of the fight that the hearings before Ford have a far-reaching effect on the movement.

Startling charges of prospective [illegible] to crops because of the alleged [illegible] high freight rates were made [illegible] at the open [illegible] W. Salsusner. He declared [illegible] more than $125,000 [illegible] of cantaloupes in [illegible] present rail [illegible] in the valley [illegible] from the [illegible]

The menace of high freight rates to this crop were dwelt upon by R. R. Stilgendaur, Mayor of Brawley and representative of the bankers of Imperial Valley, declaring that the financial institutions of that section depended upon the cantaloupe crop to carry them through the year.

He told the commissioner that approximately $500,000 a week was deposited in the banks of the valley during each week of the cantaloupe season in normal times, but that such would not be the case this year. "Without these deposits we do not see how the banks are going to live through the year," he asserted. "If the cantaloupe crop fails, Imperial Valley is wrecked."

Thomas O'Neill, president of the California Vegetable Union, declared excessive rail rates have brought about the complete annihilation of the cabbage and spinach crops, and L. K. Small, also representing the Union, declared the horizontal freight rates have brought many of the perishable product industries to the verge of ruin. "It is doubtful," he said, "if there will be any planting in California of cabbage or spinach this season."

W. J. Carr, chairman of the agricultural committee of the California

(Continued on Page 37)

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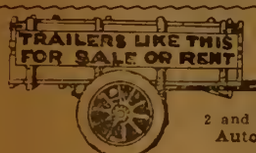


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## LIVESTOCK—Chester Whites

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A FEW CHOICE GILTS; bred or open; weanlings, either sex. Breeding and satisfaction guaranteed. H. E. Boudler, Napa.

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"WATCH US GROW" Baby Chicks. We are now booking orders for May and June at reduced prices; White and B. Leghorns, R. I Reds, B. Rocks, Anconas and W. Wyandottes. E. W Ohlen, Campbell, Calif.

EGGS for hatching for sale Rancho Del Martino strain $2 for 15 $5 for 100. Riverside Ranch, Rt A, Box 152-A, Oakdale, Cal.

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THE ROUGH RED utility S C White Leghorn chicks from heavy layers of large and trapnested stock, 10 to 100 lots Write today for hatching dates and prices Forster Brothers, 218 Otis St., Berkeley, Cal

ATASCADERO Poultry Farms, owned by Lewis Foundation Corp. S. C White Leghorns, Rhode Island Reds, baby chicks Henry Miller Supt, Atascadero, Cal

"EASTMAN'S Bred-to-Lay" Hoganized and trapnested Barred Rocks. BABY CHICKS Fairmead Poultry Farm, Fairmead, Cal

BLUE Andalusians—Eggs and stock for sale Daniel Calbreath, Monmouth, Ore.

ANCONA eggs for setting or hunting W Jones, 1731 E 41st St Los Angeles

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TURKEY eggs, Red, White, Bronze, $5.00 dozen, Houdans (fall and winter egg machines), $2.00, 15 White Guineas, $3.50, 13, White Muscovy Drake, 3.00 eggs, $1.75, 12. B. Hocking, 541 East 33rd St, Los Angeles, Calif.

BRONZE turkeys, Embden geese and herding collie dogs. Turkey eggs by setting or thousand, 45.00 -acre range John G. Mee, San Miguel, Cal

TURKEYS—Giant bronze stock, champion "Goldbank Boy" and "Copper King" strains. Bronze King Mountain Farm, Calistoga, Calif

BOURBON Red Turkeys, Buff Orpingtons, Buff Ducks. The Ferris Ranch, Grand Ave., Pomona, Calif.

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## Alfalfa as Fertilizer

WHILE the use of alfalfa as a fertilizer is not new, it has not been generally used by the rancher and citrus grower because of the alleged difference in cost as compared with stable manure, according to the Alfalfa Growers' Association of California. However, the National Orange Company has used alfalfa as a fertilizer for a number of years and claim that at $25 a ton it is cheaper than stable manure at 10 to 12 cents a foot, because of its high content of nitrogen, the amount being around 2 per cent, or double that of manure.

At present the National Orange Company is grinding its alfalfa fertilizer, but a series of power-operated saws are being built to cut the alfalfa into fertilizer, reducing the cost greatly. The alfalfa is put on the ground by means of a manure spreader, followed soon after with the plowing. Unlike manure, however, the alfalfa does not lose any of its properties by exposure. The National Orange Company plow to a depth of about four inches, and claim also that the alfalfa will hold water longer than stable manure.

It is not necessary to pay as high as $25 a ton, however, according to one of the company's officials. Third grade alfalfa at $19 a ton will produce the same satisfactory results. The National Orange Company is planning to use as much as 15,000 tons this year.

## The Portable Engine

THE so-called "portable" farm motors as well as some of the "one-man" machinery, often make extremely heavy loads for one person to move. Here is a plan for moving a small farm engine:

Simply fasten two small wheels to the front of the wooden base or support and arrange a pair of handles at the other end, so that the motor can be pushed like a wheelbarrow.

The small wheels may be elevated in such a manner that when the engine is running they are clear; only when the handles are lifted do the wheels come in contact with the ground.

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PEDIGREED Flemish Giants, also utility stock, no fancy prices. Mrs. T. Beeching, [illegible]78 W 46th St., Los Angeles, Cal.

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### ASSAYERS AND GOLD BUYERS

GOLD, amalgam, rich ore bought, cash; assaying, etc. Pioneer Assaying Company, 630 Market street, opposite Palace Hotel, San Francisco.

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GUINEA PIGS for sale. Blacks, whites, reds and creams; also broken colors. Write me your wants. J. E. Love, 104 South Rose Ave., Lamanda Park, Cal.

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# The Runt

(Continued from Page 10)

between the legs of their owner and sent him sprawling into the mud. Ben reached quickly over the fence, picked up the axe where it had fallen, and tossed it into the tall weeds nearby. Then he gave himself up to a peal of laughter that echoed to the cabin door and brought a smile to the woman there, who little guessed its cause.

His good humor restored, Ben spoke somewhat apologetically to his host. "Couldn't help laughing, Zimmerman," he said. "You went over so pretty, you know. Now, never mind the runt. I'll buy him. Give you ten dollars for him without weighing, and eight cents a pound for the rest. That's my best price. What do you say?"

"A' right. I need the money," growled Zimmerman, scraping gobs of mud from his overalls. "But what you want with a damned runt is more — — "

"Never mind. He goes in at ten dollars. Come out to the machine and I'll give you a deposit. You can send 'em in with a wagon early in the morning. I'm shipping day after tomorrow."

Ben's place of business was wherever he happened to be; his desk the battered fender of the hard-worked little car. With indelible pencil he wrote a check and handed it to the farmer, who folded it and put it in his pocket without a word.

"Don't give 'em any more water," was the buyer's parting shot, as he took his place behind the wheel. "And remember, I get the runt."

"MY God!"

Ben jammed down the brake pedal and twisted the wheel just in time to avoid striking a recumbent human form in the roadway. He had not yet left the lane leading from the Zimmerman ranch.

White with the shock of the narrow escape, he sprang from the car and knelt by the still figure, which immediately he identified as that of the boy, Edgar. The lad was limp—and pale as death.

Awkwardly picking up the little form in his arms, Ben hurriedly placed him in the runabout, turned and drove with all speed to the ranch house.

With a scream, the woman hastened to meet him. "There, there," reassured Ben. "He's just fainted, I think. Now, don't be frightened."

From the barn below, the farmer and the little girl came running.

Ben carried the still unconscious lad to a back room and placed him gently on the bed.

"Do you think I'd better phone for the doctor?" he asked.

The woman, weak with fear, turned towards her husband with tear-blinded eyes.

"Wait a minute," said Zimmerman. "I think he has only fainted. Once before he did that when he refused to eat. Get some cold water."

His wife hastened to the kitchen. Zimmerman chafed the boy's hands and loosened the little collar. Then he bathed the white forehead with the water she had brought.

Anxiously they watched. Soon the boy stirred and opened his eyes. Ben placed a cup to his lips and he drank thirstily. "I—I was sick," he murmured, "—tired—hot."

Ben placed his hand upon the boy's forehead. "I guess the sun was a little too much for him."

"Oh, he'll be all right soon," broke in the ranchman. "Better keep him in bed and give him some broth after while. He didn't eat any breakfast, either." And so saying, he left the room.

"Oh, my poor, poor little boy." The woman, her arm under Edgar's head, caressed the thin, white face. "Simon has never understood. Edgar can't be handled like the other children. And he's grown worse instead of better, until now nobody can do anything with him. Oh, my poor little dear!"

Ben swallowed hard and turned to gaze out of the window. For several minutes he stood there, thinking.

"Mrs. Zimmerman," he ejaculated suddenly. "I think the lad needs to get away. If he could have a change, you wouldn't know him. Couldn't you send him off with relatives for a visit?"

"Oh, I appreciate your kindness, Ben," she said brokenly, rising and placing her hand upon his arm. "But I don't know of any place where we could send him. Edgar IS queer, you know, and people don't understand him. He wouldn't—oh, no. I'm afraid it can't be. We'll just have to go along and —"

"I have it." The big fellow slapped his hands together enthusiastically. "Mrs. Zimmerman, would you let me take him a while? I've always got along well with Edgar, and he likes me. You know, he sticks to me like a burr whenever I come out."

"But I couldn't think of it, Ben," she replied. "Mr. Zimmerman wouldn't consider such a thing, I know. It wouldn't be right!"

"Now, I mean it, Mrs. Zimmerman

(Continued on Page 36)

*"The lad was limp—and pale as death."*

# Paint Economy

## Isn't "Cost Per Gallon"

THERE'S one way only to save on paint. That way is to use the best of paint.

Some think of paint economy as "cost per gallon." That is wrong.

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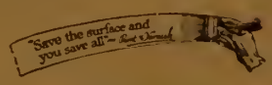


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# The Runt

(Continued From Page 35)

I'll tell you what I'll do! On Thursday I'm going to make a shipment of hogs East—going along myself in the caboose. Then I shall visit my uncle's farm in Illinois, and spend several weeks on a vacation, and of course I'll come back on the cushions."

Ben was growing more enthusiastic as he talked. And as was his habit when consumed with an idea, he stroked his almost-bald head nervously. Absorbed in their conversation, the two had not noticed the boy on the bed for several minutes. Therefore, they were almost as startled as though a corpse had spoken, when Edgar, in a weak but very determined voice, exclaimed, "I'm goin' with Ben!"

With a delighted cry, the women ran to the boy and took him in her arms.

"See," cried Ben. "He wants to go! He'll be all right by tomorrow and can ride in with the wagon that brings the pigs. I'll go and speak to Mr. Zimmerman about it. Hurrah, lad, you and I are going to have SOME trip!"

---

IT WAS nearly dusk before Ben finally made another start for town. His merry whistle sounded above the mingled rattles of his little roadster, and he left behind him mixed emotions.

Some of Ben's friends attributed his success as a trader to his persuasive manner; others asserted he was a born diplomat. At any rate, when the Zimmerman wagon rolled into town the following day, there sat beside the driver, a wistful boy of ten, a big straw suitcase tied to the rack behind him and a light in his young-old eyes such as they never had held before.

Almost before he knew it, Edgar found himself seated beside his big friend in a great, white restaurant, and Ben was ordering, it seemed to him, almost unlimited quantities of good things to eat.

His pinched body responded to the strength-giving food; his starved soul to the music of Ben's cheerful chatter. He plied his new guardian with questions, laughed at his jokes, regarded him with almost dog-like devotion.

Finally, as a climax to the most wonderful day he had ever known, Edgar went with his friend to the "movies." Many glanced quizzically or with pity at the odd little figure clinging so closely to his big protector. But for once the boy was unaware of scrutiny, oblivious to his own weakness, and too absorbed to be self-conscious.

After the show, tired but utterly happy, he walked as in a trance to Ben's hotel and followed his guardian to the apartment where the trader had maintained bachelor quarters for many years.

"And now a bath, kid—and then to bed," announced Ben, turning the faucet at the tub. "Off with the clothes! My gracious, nothing but skin and bones! We'll soon put some flesh on you. Hello, what's this?"

He was examining intently an odd scar on the boy's back. "How did you get that?"

"That mark? Oh, I dunno. I've got a lot of lickin's in my time. Maybe it's from one of them!"

As the boy splashed in the tub, Ben seated himself and absently filled his pipe. His brow was wrinkled thoughtfully. He rubbed his head in an aimless manner.

Presently he came to himself with a start. Edgar already was between the sheets, with eyes heavy as soon as his head touched the pillow.

Ben switched off the light and stood for a moment smiling down at his diminutive charge. "Good night, lad," he said softly.

"Ben, ain't you got any boy or girl?"

"No—only you."

The boy was persistent. "Ben, ain't you never had any boy or girl?"

"No, Edgar. My sister had a baby boy that I used to think a great deal of. But she—she was taken away—in a terrible accident. And I've never known—"

"Gee, Ben," interrupted the boy drowsily. "I'd like to be your boy and live with you. I hope—this ain't all—jest a dream!"

---

"JIMI-NINNY! I'll bet we're goin' a thousand miles a minute!" Edgar, enthroned in the lookout tower of the lurching caboose, eyes shining with excited pleasure, pointed out the window.

In the distance twinkled the light of a lonely ranch house. A rush of cool night air fanned the checks of the boy and the man, and they could look out upon the prairie sky, a blue-black cushion for thousands of star-jewels.

Ben scarcely heard the running fire of the boy's conversation. Subconsciously he was aware of the clicketty-clack of the wheels, but his mind mostly was busy with its own thoughts.

"Ben, why didn't you ship our little runt pig, too?" asked Edgar suddenly.

With a start, the man returned from his mental wanderings. He placed his big hand gently upon the boy's shoulders. "Hu-what's that? Oh, runt—yes, the runt. W-why didn't I ship him? Well, you see, Edgar, he was too small. He never had a chance. The larger pigs wouldn't let him get enough to eat, and he wasn't strong enough to fight for himself, so he didn't grow or develop as they did. He was misunderstood."

"They were going to kill him."

"Yes, I know. But the way to treat a runt is to get it away from the others. Let it have plenty to eat and give it a fair chance—that's all. Some of the finest animals I have ever seen were just runts that had never had a show until I got hold of them. So I thought I'd keep the poor little fellow until he was able to take care of himself."

"Oh." The boy sat silently for a long time, chin cupped in hand, gazing out into the night.

Finally the man placed an arm around his shoulder. "What's the matter, lad? Homesick?"

"Naw! I'd ruther be with you than anybody, Ben. You won't send me back home, will you?"

"But your mother? Don't you miss her? That's not the way to — "

"I ain't got any real mother, Ben. SHE'S not my mother. She only 'dopted me. It was one time when she went on a visit to Denver, and found me in a hospital, she said. He didn't know she was goin' t' bring me home, and he was mad. He's always hated me and I hate him, too. He used to beat me and I could a killed him. I HATE him. Don't send me back there, Ben. Don't——"

The boy, a look of terror disturbing his face, was tugging hysterically at his friend's sleeve. Ben placed a strong hand over the trembling little mouth.

"All right. All right," he said soothingly. I—I didn't know she wasn't your mother. You see, lad—I—"

The boy gave way suddenly to wild sobbing. And as suddenly the man picked him up and held him close. As the sobs gradually diminished he spoke in a low, reassuring voice.

"I don't see why you should travel with me, Edgar. Mrs. Zimmerman loves you and you must go to her often, but I get mighty lonesome, and I sure need some one to ride around the country with me and keep me

*"Ben was ordering unlimited quantities of good things to eat."*

(Continued on Next Page)

## Freight Rates

(Continued from Page 33)

State Bankers Association, told the commissioner that 50 per cent of the citrus growers of this State are "broke," and that the banks are not in a position to longer finance the citrus industry. "The growers are doing all in their power," he said, "but they cannot combat present conditions. The lemon and orange industries, at the present time, are not self-supporting. Banks are depending upon other industries to carry the loans of the citrus growers. The growers cannot liquidate. Groves that were formerly valued at $1000 per acre can now be obtained for $500 or $600 per acre."

### HEAVY LOSS TO PRODUCERS

C. C. Teague, president of the California Fruit Growers' Exchange, pointed out three things which are essential in his opinion to save the industry. These are: The reduction of present freight rates, lowering the cost of production, and the placing of a tariff on all imports of perishable fruits. This tariff, he declared, would not increase the cost of the California products, but increase the risk of the importer.

"The annual cost of upkeep per acre for a citrus grower is between $200 and $300," he said, "and this amount must be taken from profits which do not exist at present. This causes a neglect of the groves.

"The freight charges on citrus crops this year will total more than $40,000,000, exclusive of refrigeration costs. This is a vast increase over former years. Whatever the general condition of the carriers may be," he said, "we do not believe it will be contended that they are losing money on this regularly moving traffic of 60,000 cars a year, loading from 17 to 18 tons per car, with rates at $1.66½ to $1.92 per 100 pounds."

H. Haire, representing the Cohen, Mann & Kahn Company of Los Angeles, presented the side of the onion growers and the situation which confronts them. "Under the present exorbitant railroad freight rates," he said, "there will be no profit to the onion grower in marketing his product this year. The present outlook brings to the grower a vision of bankruptcy, unless some relief is forthcoming in the way of lower rates.

### EFFECT OF ADVANCES

"The unreasonableness of the horizontal advances is evident. A 40 per cent increase on a dollar rate is four times as much as a 40 per cent increase on a 25-cent rate. Consequently California growers are unable to compete with the short haul enjoyed by Texas. Water transportation looms as the only hope for growers. As onions do not necessarily require prompt movements to market because of their keeping qualities, it now appears shippers must take advantage of the water route in order to perfect a freight saving and avoid a heavy loss."

The hearings were held by the commissioner in Los Angeles, San Francisco, Yakima, Wash.; Boise, Idaho, and Denver, Colo. The side of the carriers was not presented at the Los Angeles hearings. The growers desire the repeal of freight rates of 25 per cent and 33 1-3 per cent, authorized to give all lines in the United States, whether profitable or unprofitable, 6 per cent net on their capitalization.

## The Runt

(Continued from Page 36)

company. Maybe you could learn to drive the car! How would you like that? And in winter, you'll go to school, but it won't be like that other school. You will think it's great! When we get to Chicago, I'm going to buy you a new suit and hat and shoes and we'll go to a REAL show. You're going to get big and strong, too. Why, you're getting fat already, you animal." He boxed the boy's ears playfully.

Well, here it is bedtime again. I'll turn the blankets. Now off with your shirt! One, two—U'mm. Let me see that back once more. Jove, that's a peculiar scar. That wasn't merely a whipping! It looks more like an old cut. You must have been a baby.

"Where did you say it was that we found you—Denver? Only Ben seized both [illegible] and [illegible] searchingly [illegible] 'Eddie after Uncle Ben.'


# Has the "Drought" Crippled Your Water Supply?

The lack of rainfall in the valleys and snow in the mountains is causing the water plane in all localities to lower. In some instances the water has dropped to a point where it is impossible to reach it without lowering the present pumping equipment. If you are using a LAYNE & BOWLER PUMP we can furnish you with an extension to go on your present pump column, thereby lowering the bowls of the pump to a point where your water supply will be increased.

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# Rheumatism

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In the year of 1893 I was attacked by Muscular and Sub-Acute Rheumatism. I suffered as only those who are thus afflicted know for over three years. I tried remedy after remedy, but each relief as I obtained was only temporary. Finally, I found a treatment that cured me completely and such a pitiful condition has never returned. I have given it to a number who were terribly afflicted, even bedridden, some of them seventy to eighty years old, and the results were the same as in my case.

I want every sufferer from any form of muscular and sub-acute (swelling at the joints) rheumatism, to try the great value of my improved "Home Treatment" for its remarkable healing power. Don't send a cent; simply mail your name and address, and I will send it free to try. After you have used it, and it has proven itself to be that long-looked-for means of getting rid of such forms of rheumatism, you may send the price of it, One Dollar, but understand I do not want your money unless you are perfectly satisfied to send it. Isn't that fair? Why suffer any longer, when relief is thus offered you free? Don't delay. Write today.

Mark H. Jackson, No. 895G Durston Bldg., Syracuse, N. Y.

Mr Jackson is responsible. Above statement true.

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# Sunflowers

## A Trained Profession

*I used to think I'd like to be*
*A railroad engineer.*
*But too much train-ing is required*
*To suit me now, I fear.*
—Justin Nutt.

## Answers to Inquiries

(In this department, Hazel Nutt, sister of the well-known poet, Justin, will reply to any and all questions submitted. Miss Nutt has been pronounced harmless by a noted alienist.)

WHAT can I do for my roses? They are literally covered with little green bugs. —A. B. C.

Leave the bugs alone that are on the stems. They do not show from a distance anyway. Those that congregate on the flowers, however, should be tinted with a delicate dye to match the shade of the blossoms.

Can you tell me of a cure for bumblefoot in chickens?—X. O. W.

First remove the cause, which very likely is a bumble-bee. When the bumble-bee nest is destroyed, no doubt the chickens will recover quickly. But if this does not suffice, cut off the affected foot just behind the ears.

What is a satisfactory method of storing furs?—O. U.

Dust with a good flea-powder, curl with a hot iron, and rub thoroughly with cold cream to hold down the temperature. Then pack in sand to prevent the hair slipping.

Mary had a shapely calf—
And I beg leave to mention
That when she showed it at the fair,
It won her much attention.
—Justin Nutt.

"Yes, my father is a professional man."
"Doctor?"
"No, gambler."

## Menu Enough

Old Portly found himself stranded for an hour or so in a strange town and decided to have something to eat. He entered the only restaurant he could find and called for a menu.

"There ain't one, sir," said the waiter, who looked as if he'd been blighted in infancy, "but I can tell you what's on."

"Let's have it then," said Portly.

The waiter took a deep breath and reeled off a lengthy list.

"You have a good memory, my man," said Portly.

"No, sir," said the waiter meekly, "I just looked at the tablecloth."

## The "Green" Hand

His Nibs—"How can I keep that gray horse from pulling ahead all the time?"

The Boss—"Take up the tugs."

His Nibs—"I took them up this morning, but the stable boss said to take them back as he had no others."

## Pickled Is Right!

*There once was a farmer named Ryder*
*Drank vinegar, thinking 'twas cider.*
*"Are you sick?" cried his wife,*
*In fear of his life.*
*"No, just pickled, my dear," replied Ryder*
—Justin Nutt.

## Relapse Ahead

A physician claims to have restored two patients to sanity by pulling their teeth. When they see the bill they may go crazy again.

Most of us would rather fight than eat our own words.

The man who prints a kiss on a pretty girl's lips seldom fails to call for a second edition.

## Quality May Improve, Though!

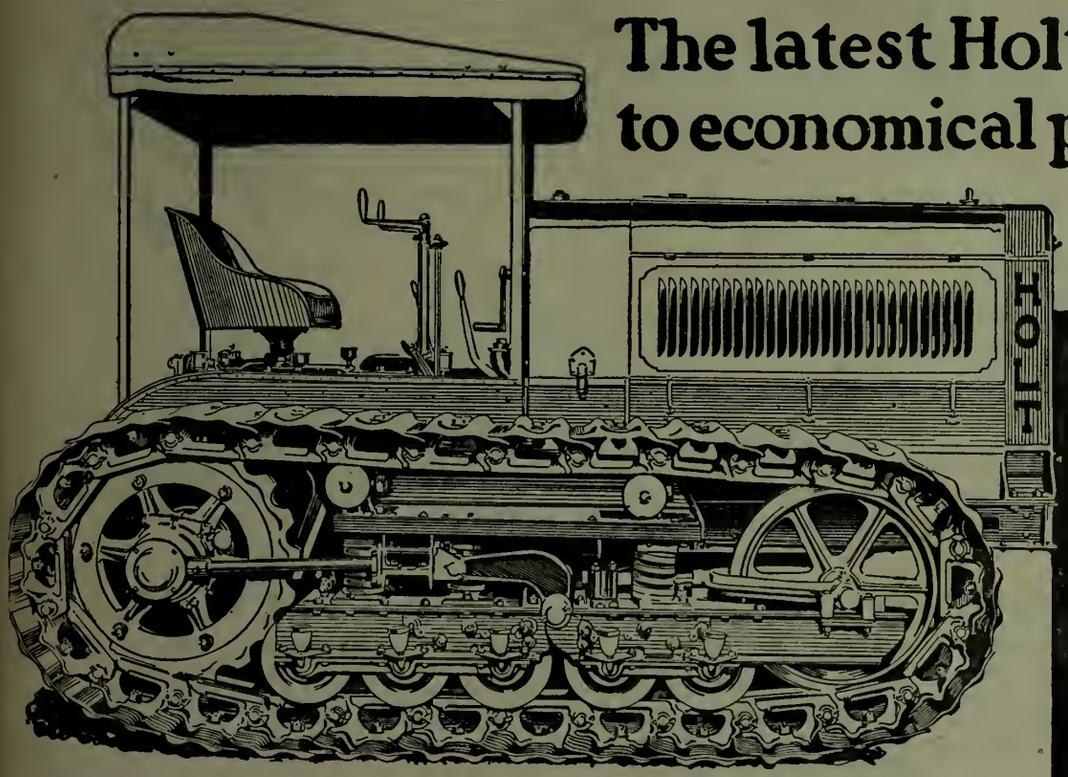
Landlord—"I won't be able to serve as much milk from now on."

Boarder—"How come? Have the cows gone dry?"

Landlord—"No, but the well has."

# New Western 10-Ton "Caterpillar" Tractor

## The latest Holt contribution to economical power-farming




### *The Holt Line*

The Holt line includes, besides the Western 10-Ton, the 75 horsepower model of the "Caterpillar" Tractor, unequalled for power and ability to handle the biggest jobs efficiently and economically; "Caterpillar" 45 Tractor, for the medium power requirements; "Caterpillar" 5-Ton Tractor, the most versatile, powerful and dependable small tractor for farm, orchard or highway work. Holt line of combined harvesters includes a size and type for every condition of ground, grade or grain—from the big Standard model to the new little one-man four-horse harvester. "Caterpillar" Disc Plows offer plowing equipment of the same high grade of construction and dependable service as the "Caterpillar" Tractor. For leveling work, there is the "Caterpillar" Land Leveler built in three sizes. Write for detailed information on any or all of these Holt products.

More years of tractor-building experience than can be found in any other tractor are summed up in this newest Holt product—the Western model, specially designed to meet Pacific Coast conditions, of the world-famous "Caterpillar" 10-Ton Tractor.

Power, economy, dependability, flexibility, long-life—every advantage you look for in a tractor is in this one—in greatest measure. It has scores of valuable new features.

It develops more than 60 horsepower. Its operating cost is less than that of other tractors of equal or even higher power-rating. The Western 10-Ton "Caterpillar" Tractor is built along commonsense engineering lines. No other tractor can approach it in long life and low upkeep costs. Here is a tractor that will do your work *when* and *how* you want it done—at lowest cost per horsepower hour.

Get full information at once about this latest and greatest Holt achievement in the tractor line. Write us or ask the nearest Holt representative.

## The Holt Manufacturing Company

Stockton, California  Peoria, Illinois

Los Angeles, Cal.  Spokane, Wash.  San Francisco, Cal.

There's only one Caterpillar Holt builds it

# The Inner Secret of making GOOD Bread

THE first essential for perfect bread is a *good flour;* one which has been properly tested for its bread-making qualities before it reaches you—a flour that is *always the same.* Every sack of Sperry Drifted Snow Flour has been put through this test.

To keep the dough from cooling, mix and knead it quickly. In cool weather the bowl containing the dough may be set in a pan of warm water. The longer the batter is beaten, the less kneading the dough will require. When dough can be lifted in a mass on a spoon, it is ready to knead.

Dough is kneaded to mix the ingredients thoroughly; to make the gluten elastic and to work in the air. It is sufficiently kneaded when it can be left on the board for a minute or more without sticking. Dough containing large bubbles has risen too long or too fast. It should be cut down and rekneaded to distribute the gas evenly.

Always make small loaves to insure bread being baked through; in large loaves the heat may fail to penetrate to the center of the loaf.

If bread rises much after being put in the oven, the heat is not great enough, but if it begins to brown in less than fifteen minutes, the heat is too great. During the first ten minutes the loaves are in the oven they should merely rise and perhaps begin to show a little brown in spots; in the second period of ten minutes they should become a delicate brown all over the surface and cease to rise; in the third period they should finish browning, and in the fourth they should shrink slightly from the pans. After the first ten minutes the oven heat can be decreased slightly, and as baking continues, it may be lessened still more.

When baking is completed, the loaves will give forth a hollow sound when tapped, and will shrink from the pan. After baking, remove bread at once from the pans and allow to cool in fresh air, uncovered. Do not put away until perfectly cold. Here's the recipe:

### Sperry Drifted Snow Bread

1 cup water or milk, scalded; 1 tablespoon melted shortening; 1 tablespoon sugar; ½ yeast cake dissolved in ¼ cup lukewarm water; between 3 and 4 cups of Sperry Drifted Snow Flour.

Put shortening, sugar and salt in hot milk, let stand until lukewarm, then add dissolved yeast and flour gradually, beating well until too stiff to stir. Turn on moulding board and knead in remaining flour until mixture is smooth. Place in well-greased bowl, brush dough over with melted shortening, cover and allow to rise in a warm place to twice its original bulk; then turn on board, knead and shape into loaves. Place in greased pans, having them about half full. Brush over loaves with melted shortening, let rise again and bake in a hot oven about 45 minutes for a medium-sized loaf.

NOTE: All measurements are level and flour is sifted once before measuring. A half-pint measuring cup is used.

*This is the first of a series of "homey" articles by Belle de Graf—an acknowledged authority on domestic science. Mrs. de Graf has learned by practical experience what practical housewives want to know. You will find these articles timely and well worth while. Watch for them!*

—EDITOR.

Belle de Graf

*Director Sperry Domestic Science Department*

**SPERRY DRIFTED SNOW FLOUR**
"A Sperry Product"

CALIFORNIA STATE

# ORCHARD and FARM

JULY, 1921

ESTABLISHED 1888

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Offices: Los Angeles and San Francisco

TEN CENTS

## *Important Questions*

**IS BUD SELECTION OF ANY VALUE IN THE DECIDUOUS ORCHARD?**
A lucid and straightforward discussion by George P. Weldon

**HAVE MILKING MACHINES REALLY PROVED SUCCESSFUL?**
Read the reply of a practical dairyman who has tried them

**SHOULD PRUNES BE DEHYDRATED?**

**DOES SUBSOILING PAY?**

THESE AND SCORES OF PUZZLING QUESTIONS OF VITAL AND TIMELY INTEREST ARE ANSWERED IN THIS ISSUE

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| 33x4 | 17.35 | 18.95 | 22.50 | 23.70 | 3.00 |
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| 36x4 | .... | .... | 25.25 | 26.50 | 3.35 |
| 32x4½ | .... | .... | 28.00 | 29.25 | 3.40 |
| 33x4½ | .... | .... | .... | .... | ... |
| 34x4½ | 22.05 | 23.20 | 29.25 | 30.25 | 3.55 |
| 35x4½ | 23.25 | 24.55 | 29.95 | 31.95 | 3.60 |
| 36x4½ | .... | 25.45 | 31.25 | 33.25 | 3.70 |
| 37x4½ | .... | .... | 32.50 | 34.25 | 3.70 |
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**OUR EDITORIAL POLICY**

Orchard and Farm is a magazine of, by and for agricultural people. We believe that to the tiller of the soil is due the best that life affords. We believe that he is the bulwark of the Nation. We honor him as the basic producer. His problems are our problems; his triumphs, our triumphs; his joys and sorrows, ours. To record his achievements and expose the duplicity of his enemies; to fight for and with him, to give him genuine help and practical information, to assist, entertain and inspire every member of his happy household—that is the policy of Orchard and Farm.

# ORCHARD and FARM

ESTABLISHED 1888

Published Monthly by Country Life Publishing Company
1111 South Broadway, Los Angeles, California
"THE SILENT PARTNER OF THE SUCCESSFUL FARMER"

Entered as second class matter at the Post Office of Los Angeles, California, under act of Congress March 3rd, 1879.

**SEASONABLE SUGGESTIONS**

Provide hot weather comfort for the animals and fowls. Is the hog-lot filled with sufferers, with hanging, foam-flecked jowls? Or is there shade and water where the beasts may find relief? Are the cows all making butter-fat; the steers all making beef? Are the chickens making money and the horses staying fat? Or are they all so melted that you don't know where you're "at"? Old Sol's a willing partner when it comes to making crops. But he'll blaze upon an animal until the "critter" drops! Then likewise drops the profit of the careless owner who is too busy keeping cool himself to care much what they do! So instead of seeking moonshine to relieve our growing thirst, let us think about the sunshine and protect the beasties first!

## Pithy Paragraphs

A good loser is one who grins—and swears it will never happen again.

Some folks interpret the motto, "Give and take," as: Give nothing and take all.

Grape-growers' ad recommends stewed raisins for breakfast. Timothy Tipple says raisin stews sometimes hang over until breakfast.

A subscriber writes: "One of my great ambitions is to build a reinforced concrete wall, 18 inches thick, place against it a life-size portrait of myself bending over to tie a shoe-lace, and show it to a certain goat."

Have you noticed how readily Washington now lends its official ear to the voice of the farmers? It is because the farmer at last has learned that he has a voice and is not afraid to use it. Great reforms come slowly, but before many years a lot of people who have concerned themselves only with WHOM to work, will have to learn HOW to work.

Jas. C. Kyllin,
EDITOR.

### HELPFUL SUGGESTIONS CONTEST

Jot it down—that idea that has increased your profit, satisfaction, crop-yield or efficiency. It is easy to win a cash prize, but the time is short. Do not fail to read the important announcement on the inside back cover this month.

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## Alphabetically-Arranged List of Advertisements

IN SCANNING the pages of the June issue of ORCHARD and FARM, our readers discovered in the advertising columns important information on many topics. One illustration showed a new truck-wheel principle, assuring traction both on hard-surface roads and in mud.

Another "ad" explained how a Ford car could be made to last one-third longer with one-third the tire and upkeep expense. On the next page was described a method of keeping food perfectly in the hottest weather without ice.

An important factor in silo construction was pointed out in a large announcement. Still another "ad" told of a new power-lift orchard disc plow, with no levers, great clearance, adjustible hitch, dust-proof bearings and light draft.

One of the most interesting "ads" described a great tract of wonderfully productive land, available at $20 to $25 an acre. These are just samples selected at random to show how essential it is that you read the advertisements regularly. This July number contains scores of announcements of equal interest and importance.

Superior as to articles and illustrations, ORCHARD and FARM nevertheless emphasizes constantly the educational and business value of its advertising. That is why in each issue we urge our readers to make use of the convenient questionnaire below. Every query is answered clearly in the advertising columns of the page listed opposite:

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## Between Ourselves

How would you like to meet a polar-bear in your wheat-field? While this experience is improbable, even in Alaska, the farmers of the far north are not without thrills. Read the second article on Agriculture in Alaska, page 5. (Another coming soon.)

"A bee is a stinger with a fly attached," wrote the small boy, doubtless drawing upon personal experience. However, there's no fear of getting stung in the honey business if you study the subject with W. B. Dickenson. The first of a series of papers on bee-keeping appears on page 9 of this number.

Speaking of tractor service, some power-farmers maintain "There ain't no such animal." Hence a frank discussion by Walter H. Gardner of the all-important question: What May the Tractor Buyer Reasonably Expect? which we shall publish soon. An equally interesting tractor article by Mr. Gardner is included in this issue.

Fact may be stranger than fiction, but it is seldom as entertaining, especially when the story-teller mixes human interest with the thrills. Albert Constant Jameson does this. His new short story that we mentioned last month is all in type—and even better than we expected. Something more to anticipate!

The editor's files hold many other contributions that we should like to tell you about, but the summer issues usually are comparatively small, and lack of space forbids more than brief mention of a few. We hope there are no July Fourth catastrophies, but "boys will be boys," as Artist Shuman pointed out when he prepared the July cover design. Therefore, we can only join the dog and cat in hoping the day will pass quickly. After the "Fourth" watch for the August issue of ORCHARD and FARM, better, brighter, more helpful, and more entertaining than ever—and, how about renewing your subscription?

### THE "GREEN" HAND

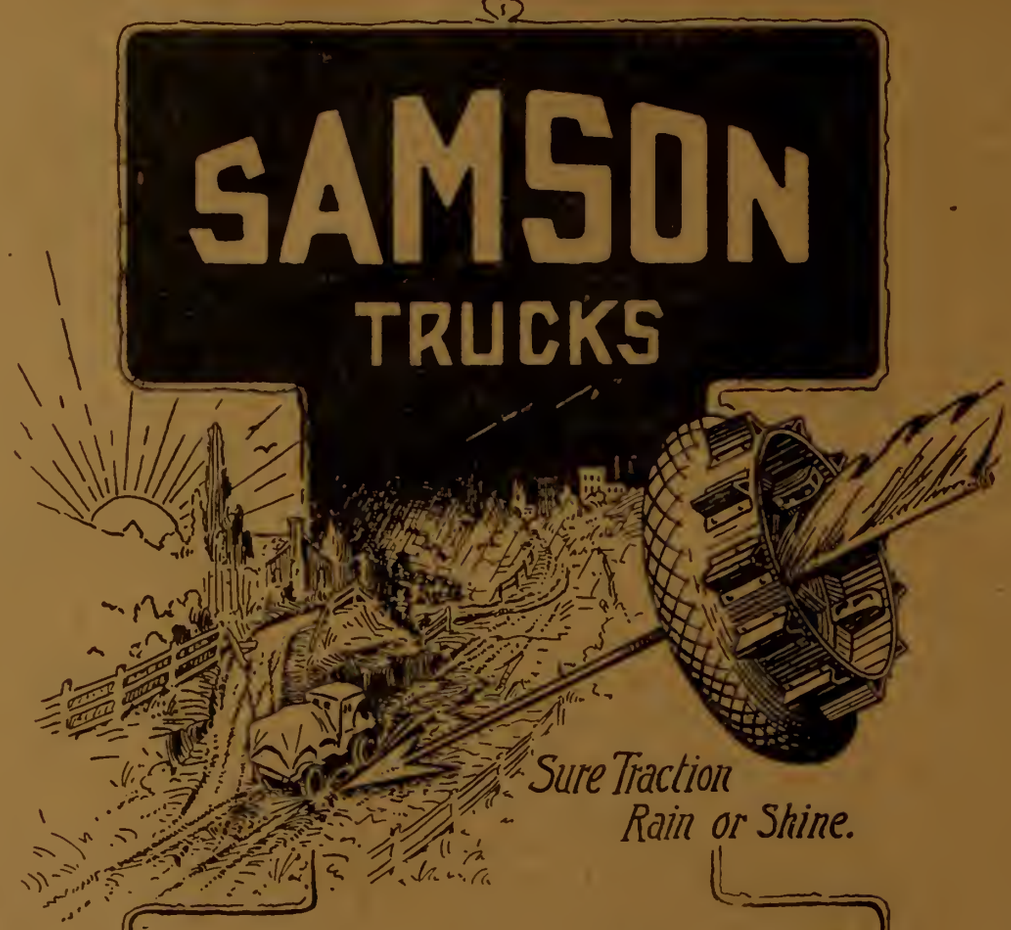
*The Boss—"We believe in looking out for the safety and comfort of our men on this ranch."*

*His Nibs—"Yes, this morning I noticed the blacksmith putting rubber pads on the hind feet of my mules."*

Shock absorbers unquestionably aid in establishing a tranquil state of mind, as any flivver driver will testify, and why would not the same principle apply to a mule-skinner? Another method of achieving tranquility is to spend one's precious reading hours with worth-while writers, who speak with authority or from practical experience, and who know how to make their messages interesting. Only such writers are employed by ORCHARD and FARM, the magazine that is refreshingly "different."

### A Creed in Twelve Chapters

(7) Education.—Have you ever rightly considered what the mere ability to read means? That it is the key which admits us to the whole world of thought and fancy and imagination? To the company of saint and sage, of the wisest and wittiest moment? That it enables us to see with the keenest eyes, hear with the finest ears and listen to the sweetest voices of all times? More than that, it annihilates time and space for us.—Lowell.

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*Samson Trucks*

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# Samson Tractor Company of California

STOCKTON, CALIFORNIA

Write for Book H—"How to Reduce Your Farm Operating Cost." FREE

There's a dealer in your locality

ORCHARD and FARM

VOL. XXXIII. JULY, 1921 NO. 7

# Agriculture 'Neath the Midnight Sun

By E. J. White

***THIS is the second of a series of articles on Alaskan agriculture, prepared especially for ORCHARD and FARM by the Chief of the Government Bureau of Publicity at Juneau. Alaska needs, for complete agricultural development, more population, better transportation facilities, and assured markets for her products. Meanwhile, wonderful strides are being made, and recent developments presage events that will astound the world.—Ed.***

TWENTY years ago had anyone suggested farming in Alaska and especially raising wheat, oats, barley, rye, timothy and clover, some scoffer would have remarked at once, "He missed too many steamers to the outside," meaning that the agricultural enthusiast had remained in the country too long and was a fit subject for an insane asylum.

But in the year 1906, the Government having established a number of agricultural experimental stations in the Territory, the work of cultivating wheat was attempted at Fairbanks, which is located in the valley of the Tanana River and on about degree 65, north latitude.

Seed which had been obtained from Russia was planted, about a pint of seed being sown the first year. Since that time and by hybridization and cross-breeding, a number of varieties peculiarly adapted to Alaska have been developed and wheat growing is becoming one of the leading industries in agricultural life of the far north.

### OTHER CEREAL CROPS

With the growth and development of the wheat industry, other crops also were given attention, with the result that yields for 1920 in the Fairbanks district alone show the following figures:

| | Acres | Yield Per Acre in Bushels | Total Yield in Tons |
|---|---|---|---|
| Wheat | 166 | 15 | 60 |
| Oats | 40 | 32 | 22 |
| Barley | 10 | 26 | 6 |
| Grain hay | 1368 | .. | 1026 |
| Potatoes | 160 | .. | 480 |
| Vegetables | 20 | .. | 100 |
| Total | 1764 | | 1694 |

In the Fairbanks district there are 107 homesteads, comprising 24,337 acres, and of these homesteads at least 75 are on land that is as yet unsurveyed, the residents being what are termed "squatters," but possessing priority rights when the surveys are made.

As the market price for wheat was $210 per ton, for oats $180, barley $180, grain hay $100 and potatoes from $100 to $125, it will be seen that agriculture is no small item in that district.

And there are yet hundreds of thousands of acres of fine farming land open to entry by homestead in the Tanana Valley. But until there is a decided increase in the population, the market for agricultural products necessarily must be limited.

### LIVESTOCK THRIVES

Horses, cattle and hogs all do well in the vicinity of Fairbanks and at the Government experimental farm there the Galloway breed of cattle is being crossed with yak, a number of the former having been imported from Canada for experimental purposes last year. It is yet too early to announce the result of the experiment.

In the valley of the Matanuska River, which skirts the line of the Government railroad in South-eastern Alaska and a few miles north of Anchorage, the metropolis of that portion of the Territory, [illegible] is being attained along agricultural lines. In fact, as much as 25 bushels of wheat to the acre is not unusual there, and all other cereals and vegetables do equally well, from six to eight tons of potatoes being considered a fair yield. In this valley are also vast tracts of land subject to homestead.

### EARLY DISAPPOINTMENTS

In the early history of wheat and other cereal cultivation in Alaska, many disappointments were encountered owing to frosts in late summer and early fall, it being considered, for a time, practically impossible to bring crops to maturity. But by cross-breeding, year after year, varieties have been developed that fully mature during the brief summer season. For example:

The Romanow variety of wheat seeded at the Fairbanks experimental farm on the 13th of last May was fully matured on August 26, just 105 days after seeding, even though a drouth in June greatly retarded its growth. In more favorable seasons wheat has been matured in from 95 to 100 days after seeding; but in more unfavorable years it has entirely failed to mature before the advent of frost late in August or early in September, and under such conditions it has been harvested for hay.

A $15,000 grist mill was installed at Fairbanks last fall and cereals grown there now are manufactured and consumed at home.

### GLIMPSE OF OLD DAYS

In the earlier history of Alaska practically all food, aside from fish and game, was imported from "the States" and in those days fresh fruit and vegetables, especially in interior Alaska and in Yukon Territory, were almost unobtainable. The writer recalls that in Dawson City in the spring of 1900 he paid $2.50 for two pounds of potatoes and carried them home in his pockets to prevent their freezing.

But there has been a mighty evolution since the stampede of '97-8, and Alaska is not the wild and unfettered country it was when bacon, beans and canned goods constituted the principal items on bills of fare.

The Sam Brothers, Flot and Jet, who drifted into the northland at that time, long since have departed; those who remain are the ones who came girded for the combat, and 99 per cent of them have made good in this land—

*"Where the sun on Christmas morning in the act of rising sets,*
*So that just one minute's sunshine is all this country gets."*

[The third article by Mr. White, telling among other things, of the wonderful growth and possibilities of the reindeer industry, will be published in an early number.]

***Farming in Alaska***

***The scenic beauty as well as the enormous productivity of the typical Alaskan homestead are indicated in this striking illustration, from a photograph taken at the Erickson form, near Fairbanks. Below—Threshing wheat in Tanana Valley.***

# "Trapnesting" Trees—Individual Records and Bud Selection in Deciduous Orchard

*THE trapnested hen is one of known production. Shamel has demonstrated that citrus growers, as well as poultrymen, can keep individual records.*

*But what of deciduous trees? That is another question, now being widely discussed in horticultural circles. And Mr. Weldon attacks it in his usually straightforward, helpful manner.*

*Be sure to read this important and timely article.—Editor.*

By George P. Weldon

CONTRIBUTING HORTICULTURAL EDITOR OF ORCHARD AND FARM

POMOLOGIST CHAFFEY JUNIOR COLLEGE OF AGRICULTURE

THROUGH the excellent work of A. D. Shamel of the Bureau of Plant Industry, U. S. Department of Agriculture, the citrus growers of California now may be assured of something nearer "pedigree" stock than ever before has been known. There were those who said his plan wouldn't work, but skepticism did not cause Shamel to falter for one minute. He had a vision of a big job, as well as the necessary qualifications to carry it through.

But if there was unbelief regarding Shamel's bud selection work with citrus, it did not "hold a candle" to that which apparently greets those who are endeavoring to do some work along similar lines with deciduous.

*Perhaps there is justification for this attitude, which would discourage bud selection, yet my feeling is that the work is so big, every inducement should be offered to those who are making an honest effort to raise the standard. The writer, personally, has made records of over 5000 peach and apricot trees growing in some of our best Southern California orchards and naturally is keenly interested in the question.*

### BUD SPORT VARIETIES

Varieties of deciduous as well as citrus have been known to originate from bud sports. While these may not occur so commonly in deciduous trees as in the case of citrus, their presence frequently can be detected. In some cases, the work of bud selection is conducted principally for the purpose of discovering sports and propagating new varieties therefrom, and while this is a possibility, the creation of new varieties when already there is a great list of good sorts is not so important as the work of keeping those we have up to a high standard or improving them through the process of selection.

### COMMON SENSE LOGIC?

There are shy-bearing trees and weakling trees, the condition of which cannot be accounted for altogether by environment.

*Is it not better to propagate from the heavy-bearing and strong growing trees than from those that have never borne good crops or those that have refused to do well with the best of treatment? If there is nothing to this idea the nurseryman would not be justified in exercising any care in the selection of his buds except to know that they were of the variety desired.*

While definite proof of the value of selection seems to be lacking, there are few who would go so far as to say that just as good nursery stock can be grown from an unhealthy tree which never bore enough fruit to pay for its keep, as from one that is noted for its thrifty habits and heavy bearing.

### INVESTIGATION JUSTIFIED

Certain possibilities in individual tree production records, the writer believes, should justify extensive investigations. Any one who has observed closely, trees in bearing, has noticed a decided difference in the time that various individuals ripen their fruit. Sometimes soil conditions may influence, but often early or late ripening seems to be a characteristic of the individual. It may be worth while to locate trees of a certain variety of peach, apricot or other fruit that ripen their fruit as much as two weeks earlier than others. In the event that they do so year after year, there is a possibility of propagating an early strain of the variety from such trees.

Mere theory—some will say, but without theorizing there is little to induce one to carry on careful investigations.

### ESTABLISHING VARIETIES

Individual tree-production work, even if not otherwise justified, is worth everything one may put into it from the standpoint of the knowledge of varieties, gained through close study. Anyone at all familiar with varieties of deciduous fruits, knows there is much confusion regarding certain kinds. A popular commercial variety may be sold under several different names, or the same name may be attached to two or more clearly distinct varieties. The Tuskena peach affords a splendid example of this confusion. There are so many kinds bearing the name Tuscan, a corruption of the proper name Tuskena, that the planter never is certain what he is buying.

In the case of the Royal and Blenheim apricots, no one yet has been able to point out a consistent difference, and frequently when both kinds are ordered from the nurseryman, no difference can be detected in the trees or the fruits.

### NEED FOR VARIETAL DETERMINATION

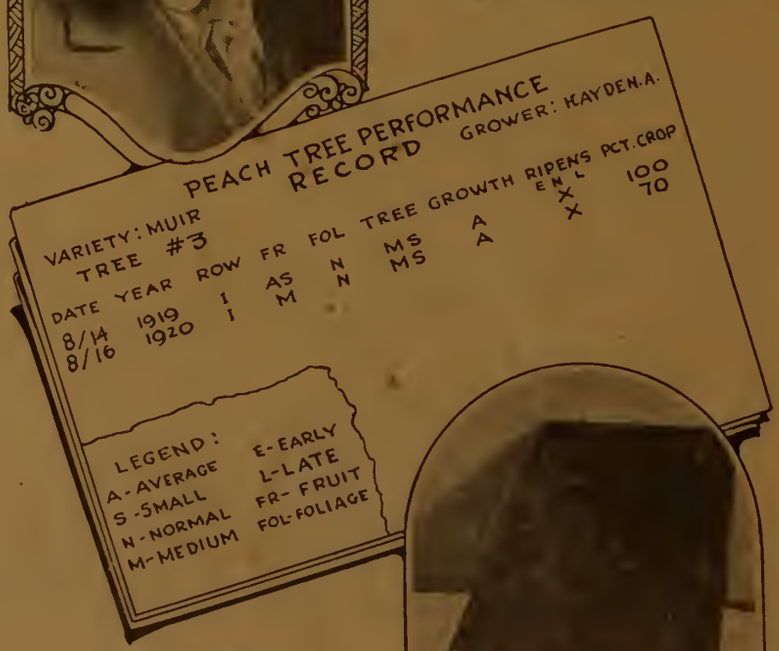
The fruit grower has suffered because of this uncertainty regarding varieties and it is my purpose to encourage and aid in every way possible, any nurseryman or fruit grower who wishes to keep records of production in scion orchards or elsewhere, as the work, if it never results in the creation of a new type, at least will be the means of familiarizing the growers with good existing varieties.

A very simple method of keeping records of tree production which lacks scientific accuracy, but which is extremely practical, is outlined below.

*Dreamer and Do-er*

*The man whose portrait appears at the left had a great vision, and possessed the courage to cling to his convictions in the face of ridicule. He is A. D. Shamel, who as an official of the United States Department of Agriculture, carried on the bud selection work which has been of inestimable value to the citrus industry. But can the same principles be applied to other fruits? That's the question!—Ed.*

Portrait, Courtesy "Citrograph"




*The Card System*

*Above is facsimile of card used by Professor Weldon in checking the performance of individual peach trees. The legend explains abbreviations. Such cards may be kept in an ordinary card-index file, such as that illustrated. The orchardist who gets acquainted with his trees has taken a big step forward in systematizing his business. With production on a known basis, many formerly puzzling problems may solve themselves.—Ed.*

## Numbering the Trees

INSTEAD of going to the expense of placing a number on each tree one may select a certain corner of the orchard as a starting point.

For purpose of illustration we will say that the tree on the northeast corner of a block is tree 1 in row 1. If the rows are to be numbered from east to west then the next tree south of tree 1 in row 1 would be tree 2, row 1, and so the entire number of trees in the row would be numbered in consecutive order. If there were 40 trees in the row the one on the south end would be tree 40 row 1. In row 2 the first tree on the north would be tree 1, row 2, and the last, tree 40, row 2.

If the starting point is carefully designated in notebook and if every space in the orchard is accounted for, no matter what kind of tree it contains or whether a tree is missing, there is little chance for error.

### ITEMS LISTED ON CARD

Under the system used by the writer there is a record card for each tree upon which is listed the date, name of the orchard owner, variety of fruit, number of tree and row and a record of the condition of the tree and fruit. If any disease is present, notation is made of this fact. The crop is estimated on a percentage basis, 100% being a normal crop. The cards are designed to accommodate the figures for a ten-year period at least; that is tree No. 25, row No. 3, of the John Doe peach orchard, at the end of ten years might show production as follows:

| Year | Percentage of Crop |
|---|---|
| 1921 | 90 |
| 1922 | 80 |
| 1923 | 75 |
| 1924 | 25 |
| 1925 | 60 |
| 1926 | 65 |
| 1927 | 100 |
| 1928 | 50 |
| 1929 | 85 |
| 1930 | 75 |

The objection to this method is its inaccuracy. An estimate, while it may approximate the facts, is only an estimate and therefore is of less value than an exact account of production. In a comparative way, however, the figures mean much, providing the record work is not done by careless helpers.

In the writer's work, all records so far have been made in person. And while they are lacking in scientific accuracy, it is believed that the ease with which records can be kept in this way will appeal to those who could not possibly find time to weigh or measure the fruit to secure exact data. The results, as far as a study of fruit and trees is concerned, will be the same.

### TOO HASTY CONCLUSIONS

Perhaps no one realizes more keenly than the writer that a few nurserymen have been hasty in offering pedigreed trees to the planter. Carelessness in drawing conclusions from the work of scarcely more than a year should be absolutely discouraged, and misrepresentation by anyone regarding this work should be condemned.

On the other hand every nurseryman who is making an honest effort to improve the character of the stock he sells, by careful selection of buds from trees that are above the average, is performing a service to the fruit industry that is far reaching. He should be encouraged too much in his efforts along this line.

While he may never create new varieties, at least he will give the planter the best trees possible to produce, and he will be more certain than ever before that the trees he supplies are true to name.

**Sweet Clover on Alkali**—California land owners troubled with white alkali will be interested in the report of a Colorado farmer. Charles Mahl of Monte Vista has had 2½ acres of yellow sweet clover pasture growing for the past two years on land white with alkali. This acreage last year pastured three head of cows all summer and four horses at night, according to report. Twice, Mr. Mahl states, he had to turn into this pasture forty head of stock to keep it down. There is some danger of bloat on sweet clover if cattle are turned in on it after it has become rank. Heavy pasturing, therefore, is recommended. The plant is being introduced into California and it is said that seed dealers already are taking steps to supply the expected demand.

**Marketing Dairy Products** — C. A. Pearis, dairy inspector for Tulare County, issues the following warning: "I believe the time is not far distant when dairy products will be sold on their merits at time of delivery. There are two essential factors in getting the best out of the dairy product: Keep it clean and keep it cold. 'Clean and cold' should be the dairyman's slogan. It is well worth while from the advertising standpoint alone to have all buildings painted or whitewashed, surroundings thoroughly cleaned up and loose boards and other junk removed. Furthermore, we should bear in mind that 90 per cent of the dirt enters the milk during the milking process. Clean cows, clean hands and hooded pails are essential. Many careful dairymen make a practice of cleaning their cows before milking with a piece of burlap about twenty-four inches square, which has been wet and then wrung out. Loose dirt and hair may be removed quickly with such a damp cloth. Eternal vigilance and careful study of the score card are sponsored by progressive dairymen."

**Mariout Barley Yields Well**—Mariout barley, the sensation of grain growers last year, probably will show equally good results in California this season, judging from the first report of 1921 yields. Assistant Farm Advisor Bougher of the Los Angeles County Farm Bureau says he never has seen a better stand of grain than on the 100-acre field of R. E. Miller at Lawndale, where the estimated yield was thirty to thirty-five sacks to the acre. Common barley planted on adjoining land was hardly good enough to cut, as a result of the dry spring winds, which burned it up, but did not affect the Mariout. Mr. Miller's yield of common barley last year was 15 to 17 sacks to the acre; he has just about doubled his yield by planting Mariout.

**Anti-Suckling Device**—It is unnecessary to separate a calf from its mother. The anti-suckling device, which allows the calf to pasture, is very satisfactory. One day's use of one of these muzzles often convinces both calf and cow that weaning time has arrived. I am "strong for" this method.—Tulare Farmer.

**The Best Time to Kill Weeds**—Right after they sprout. A harrow or other fine-toothed implement is desirable for this work because it keeps the soil fine and covers more ground with less labor than any kind of a cultivator.—O. H. B.

**Paint the Hen Roosts**—Carbolineum or some other good "dope" should be used during the summer season. A [illegible] in France who has entertained [illegible] knows how a hen feels when tortured by blood-sucking insects.—O. H. B.

**[illegible] Time to Look Over the Farm**—[illegible] No matter how busy you are [illegible] something that will [illegible] several days' work in the [illegible].—O. H. B.

**The Flanders Poppy**—Following agitation concerning the plan of sowing Flanders poppies in various parts of the United States as a war memorial, many protests have been received from farmers. The Department of Agriculture, however, asserts it is not a dangerous weed unless widely distributed in grain-growing sections. Planting in flower gardens is not deemed dangerous. The plant is said to be poisonous to livestock, but, being of unpleasant odor and unpalatable, seldom is eaten unless mixed with grass.

**Ground Rock for Fertilizer** — That a wonderful potential source of fertilizer lies in our great rock ledges and outcroppings is the contention of Chicago scientists, who issued a statement recently following a conference on soil fertility. Doubled yields of alfalfa, clover, peanuts, potatoes, tobacco and other crops through the use of pulverized rock, such as lime, phosphate and gypsum, were reported. Dr. William Crocker of the University of Chicago and Professor George A. Olson of the University of Washington are said to have declared the proper use of ground rocks would provide a permanent system of soil fertility.

**Haying Hint**—Too many farmers allow the first crop of alfalfa to stand two weeks after it is ready to cut. The result is coarse, woody stems—"hazlebrush hay." Just after blooming has fairly started is the best time to cut. Small cuttings, small cocks and quick work are the secrets of success in making alfalfa hay, especially in a damp climate. Remember, hay can be put in the mow fairly green if it has not been rained on or wet by a heavy dew. It is not the natural moisture in hay that makes it musty, but that which is absorbed from outside sources.—O. H. B.

**Thinning and Propping**—June is the principal month for thinning apples in the Northwest, although the old adage, "Never too late to do good" applies well to this work. The rule for sweetening gooseberry pies—put in as much sugar as you think is needed, then double it; then shut your eyes and pour—can be adapted to thinning trees which are badly overloaded, since it is practically impossible to thin such trees too severely, and no orchard work, perhaps, pays bigger dividends.—O. H. B.

**Laces for Work Shoes**—Mr. Rancher, the next time you require laces for work shoes, instead of getting buckskin laces from the shoemaker, go instead to the harness shop and ask for a couple of thin strips from the sheet of chrome leather collar lacing. These can be cut much smaller than buckskin laces and after once shrinking are not injured by water and will not slip nor become untied. They will outwear two pairs of shoes, being far more durable than any other kind of laces.—Tulare Farmer.

**Mending Leaks in Pails**—Do not throw away a bucket or can which has a small leak, provided it is to be used for cold liquids only. Clean well along the leak, cover with shoemaker's wax and pour on some cold water. This will wear indefinitely, provided it is not heated. Warm water, of course, will melt the wax. Asphalt paint is useful for covering rusty spots, thus preventing leaks in the bottoms of pails. Pitch, heated and brushed on, so as to completely cover the bottom of the pail, will fill small leaks.—Tulare Farmer.

**Dull Augur Beats Sharp**—Observing a neighbor trying to bore a hole in hard, moist clay in the bottom of a pit, I suggested that he replace the sharp augur (which caught and bound in the clay) with one that was dull. The exchange proved a surprise. The dull augur turned easily and made the hole quickly. This reverses ordinary conditions, of course, but clay has peculiarities of its own. When an augur used in blasting work begins to lose its edge, do not send it to the blacksmith immediately. Keep a sharp file with you and sharpen it frequently until it is so worn that a new edge must be hammered. Then it is far cheaper to send it to a smith than to waste time with a dull tool.—Tulare Farmer.

**Pigs in Clover**—If you want the pigs to grow fast and keep healthy, don't leave them in a muddy lot. A filthy pigsty is an abomination to the Lord—and to the neighbors. A hog really is a cleanly animal if given anything like a fair chance. Of course, he wallows in the mud, but then some very nice folks take mud baths. Getting dirty disgraces neither man nor animal. Keeping filthy is what breeds disease and denotes moral turpitude.—O. H. B.

*IN studyin' out the reasons fer my heavy losses last year, I come to th' concloosion thet it was becuz I hadn't follered no system. So t'other day I decided t' start in an' get all my op'rations on a more bizness-like basis.*

*Seems like when a feller d'cides t' experiment, he always picks on th' poultry. Leastwise that's what I done. I built some trapnests so as t' check up th' egg production an' then set down t' figger out a card system fer keepin' th' accounts. Well, th' upshot of it was I strained my eyes a figgerin' (not havin' found time t' have my spectacles fixed) an' had t' stay in a darkened room fer a week.*

*I fergot all about th' trap-nests and six of my best hens was caught in 'em an' starved t' death!*

*Furthermore about ten dozen eggs I had been plannin' t' deliver in town fer some time, all spoiled. An' on top of all that misfortune, while I was laid up, some tramp broke into th' fattenin' pen an' stole all th' broilers that I had been preparin' fer market.*

*Th' lock on thet pen has been broke fer weeks, too, an' I was jest goin' t' fix it! Seems like th' jedgement of Fate that this should happen jest when all them other troubles was upon me.*

*Well, t' make a sad story pitiful, my systematizin' venture jest about cleaned me out o' th' poultry business. How much better off a feller would be just to go along in his own way an' not pay no attention t' these system sharks thet is always tryin' t' make a lot o' extry work!—BEN GONNADOOIT.*

**Skim Milk vs. Green Grass**—A farmer who had about 100 hens, two cows and two calves gave all the skim milk to the calves. This plan proved profitable as long as the poultry had plenty of green grass. But when the grass dried, the egg production decreased rapidly. By this time the calves were large enough to get along with very little milk and most of it was given to the hens. In less than ten days the average egg yield jumped about 50 per cent, or about 45 eggs a day, at a cost of 25 cents a day at the current price for skim milk. This meant that the skim milk from one cow was worth as much for hen feed as the butterfat of an average cow would have brought at the creamery. In fact, it was more valuable, as much of the milk was consumed by growing chicks. Cows and chickens make a profitable combination. When the green feed is scarce, try skim milk. — Tulare Farmer.

**Cure for Broody Hens**—The persistent hen that wants to set in spite of everything that can be done presents a difficult problem. One farm woman says that when nothing else affects a cure, she hangs the broody hen in a sack, giving the sack a shake to disturb the hen whenever she passes. A few hours of this treatment, she asserts, works a cure more quickly than any other method.—Tulare Farmer.

**Planting Grape Cuttings**—Many grape cuttings are not properly planted or cared for. Interesting, therefore, is the system used by Charles Walters of Tulare County. He stretches a wire tightly along the row, putting in markers every few feet. Then he runs a subsoiler straight along the wire, trying to knock down every stake. The ground then is put in as good shape as possible. Next come the planters, who place the cuttings, leaving only one bud exposed above the surface of the ground. The surface is level so that the buds never are covered nor dried out on account of exposure. A uniform stand generally results. Furthermore, when the cuttings are growing the vines are straight and a two-horse corn cultivator can be run within an inch of the row without injury.—Tulare Farmer.

**Care of Dry Grape Cuttings**—A farmer who desired to make a small grape nursery ordered a lot of cuttings made from a vineyard. Upon arrival they were so dry they looked as though they might not grow. He placed them "end up" in a reservoir and twenty-four hours later reversed them, leaving until full of moisture. Nearly every one sprouted. Grape wood is hardy and recovers from neglect, but soaking in water in this case brought much better results than could have been attained by planting in moist earth.—Tulare Farmer.

**Vacation Time**—Suggestion to our Northwestern readers: Take two weeks "off" and attend the Portland Rose Festival, and Farmers' Week at Corvallis. The former will occur June 8-11 and the latter June 13-18. Do you recall the ORCHARD and FARM article about farmers' vacations which appeared last October? Now is a good time to carry out the suggestions. June is the month which comes between seed time and harvest and affords a good chance for a breathing spell on the farm. A single idea or piece of information picked up on either of the trips suggested might easily pay all expenses of the vacation. If you come to Corvallis the writer will be glad to meet you.—O. H. Barnhill.

**Well Planted Is Half Cultivated**—If the ground be made fine and loose and free from weeds when the seed is planted, subsequent cultivation will be easy.—O. H. B.

# These "Agriculturists" Are Setting a Good Example for "Dirt Farmers"

A FORCEFUL example of the advantages and success of co-operative effort in the development of new fruit and agricultural districts is that of the Figmond Growers' Association, whose project near Snelling, Merced County, is assuming considerable proportions and an importance which is attracting no little attention.

The tract is one which was placed on the market several years ago, and sold to a number of individual purchasers, in parcels of ten to forty or more acres each. Among the investors was a group of Los Angeles men, a number of whom are associated with the firm of Barker Bros., the big home-furnishing house. With interests in common, these men formed about a year ago the Figmond Growers' Association for the purpose of improving their properties on a co-operative basis.

### SUPPLIES PURCHASED

Contracts were made for all supplies needed on a combined basis, including fencing posts and wire, and trees were ordered in the same way. Arrangements for dynamiting and planting also were carried out on the same extensive scale.

One of the members of the Association who was ready to take up his residence on the land was selected as manager of the combined properties and supervision of work on the land and care of the groves was placed in his hands. Another caretaker has been added to supervise the handling of the additional acreage planted this spring.

With the acreage which will be improved this season and the holdings of W. C. Shull, which are a part of the same tract approximately 500 acres now is in orchards, the greater part to almonds, figs and grapes.

Under the system of co-operative management the success of the project is assured, and probably in no other way could the district have been awakened into equal activity or sensed the possibilities of profitable development in the same measure.

### MEMBERS HOLD MEETINGS

Regular meetings are held monthly, and all members of the Association thus keep closely in touch with development work, although removed several hundred miles from the tract itself. Inspection trips are made, several times each year, from Los Angeles, by as many of the members as can go in a body.

With the improvements which have been made and the development of the district, property values have been materially increased, and tributary properties are now held at twice or three times original prices.

### SUCCESSFUL DEVELOPMENT

The district has been proven a particularly successful one for almonds, grapes, peaches and figs. Almonds, taken from some of the groves last fall, which were planted four years ago, were of exceptional quality and graded strictly "No. 1."

### MEMBERS WELL PLEASED

The members of the Association all are enthusiastic boosters for this comparatively-new Merced County colony, and most of the members expect ultimately to make their homes on the property. Sentiment is unanimous in favor of the employment of white labor and the exclusion of Japanese, and also in favor of the Merced Irrigation District, which has the united support of the Association.

Within a few years, from the beginning already established, this new tract, closely adjoining Snelling, undoubtedly will embrace a prosperous community, including several thousand acres of highly-developed groves, and the district—located in the foothills of the Yosemite Valley, adjoining the Merced River—will become known as one of the proven and successful almond territories.

Study of the soil proves it to be exceedingly rich, and all conditions combine to make the district especially well-adapted for the growing of grapes, peaches and figs, as well as almonds. Considerable acreage is being set out this spring to Thompson Seedless Grapes, with the assurance that the district is to be included in the irrigation project, and ample water supplied. Several fig orchards have been set out, including Calimyrna, Black Mission and White Adriatic varieties.

The officers of the Figmond Growers' Association are as follows: President, W. I. Breser;, Vice-President, F. A. Clarke; Secretary, F. M. Erwin; Treasurer, E. L. Rogers; Corresponding Secretary, E. D. Smith. The office of the Association is at 732 S. Spring Street, Los Angeles.

## Citrus Tractor Experience

AT THE recent San Bernardino Citrus Institute some of the most interesting statistics yet compiled by California orchardists on tractor and horse cultivation were presented. Citing figures for a seven years' comparison of costs, W. H. Fleet, manager of the famous Rancho Sespe at Fillmore, showed a cost per horsepower day of $1.36 for the tractor as against $1.25 for mules, but emphasized strongly the difference in quality of work done as greatly in favor of the tractor.

On the other hand, C. A. Griffith of the Azusa Foothill Fruit Company showed that it has cost this concern only 66 cents per acre for tractor work, as against 73 cents an acre for the mule, with a difference in quality much in favor of the tractor.

J. A. Dennis, superintendent of the Mutual Tractors Unit at San Dimas, who has had much experience in co-operative orchard handling, reported a slight difference in favor of the horse as to cost, but confirmed the opinions of the above mentioned orchardists as to results accomplished.

# Practical Dairyman Acclaims Milking Machines Big Success

MECHANICAL milkers are a success! Of that, there is no doubt in the writer's mind. Several year's experience with a machine in my own barn and observation of other installations during this period lead to this conclusion.

Some of our cows have been milked for three lactation periods and our daily milk weight sheets show that the cows gain in production from year to year. Moreover, the cows' udders show no ill effects and during this time we have not lost a single quarter. We have milked mature cows that had been hand-milked for years and we have used machines on heifers for their first milking. We find the machines work equally well in either case. It is no trouble to break the old cows to the machine method and it is no more difficult to accustom a heifer to the machine than to hand milking.

### DIFFERENT TYPES OF MILKERS

There are several types of milkers, as shown in the following schedule:

1—Power driven milkers—
- (a) Rod-driven type.
- (b) Pipe-line type.
  - (b1) Single pipe systems.
  - (b2) Double pipe systems.

2—Self-contained, portable electric milkers.
3—Foot-power milkers.
4—Hand-power milkers.
5—The Australian bucketless system.

Many recent installations are of class 1. The rod-driven milkers use a small brass pump (about 3x18 ins.), which fastens to a casting on the stanchion above the cow's head and is operated by a wooden rod that moves back and forth some forty times per minute.

This rod has a range of about 18 inches, and when the pump piston is drawn out, suction is created on the teats; when the rod reaches the end of the stroke the suction is broken and the teat remains "at rest" while the piston is making its return trip. This type machine is to be recommended for its simplicity.

The pipe line systems, of which there are several highly successful types, use a 5 or 6-inch vacuum pump centrally located, and have a pipe along the stanchions with cocks at regular intervals. Some systems force compressed air into the teat cups in order to create what is called an "upward squeeze" and therefore require a second pipe line to carry the compressed air, which is obtained from one side of a vacuum pump.

Another two-pipe system creates its pulsations at the pump and uses a small pipe to convey these pulsations through suitable relays to the teat cups. Nearly all pipe line milkers use a small, piston-like arrangement called a "pulsator," to turn the suction on and off.

### SELF-CONTAINED POWER

One of the rod-driven machine makers recently perfected a self-contained, electrically driven unit which consists of his standard pump and milking unit geared to a small motor. Now a similar outfit is available in the other type.

The foot-power milkers have not been extensively used on the Coast, but have found favor in some parts of the East. The operator sits on a bench between two cows and pumps with his feet, as though pedaling a bicycle.

Another factory makes a hand-power unit for small herds or for use where it is desired to try out machine milking before going to the expense and bother of installing a power outfit.

### VARIOUS KINDS OF CUPS

The teat cups used by the different machines are divided into classes. One class is the "single chamber" cup, which includes both the unlined metal cup used by several machines and the collapsible rubber cup used by only one maker. The other machines all use a cup with an inner rubber lining that serves to massage the teat or to squeeze out the milk.

The single metal cup has the advantage of being very simple. There is a rubber cap fitted at the large end of the cone-shaped cup, and except for the hose that connects the cup with the cow, there are no other rubber parts. The rubber caps are of soft rubber, and stand hard usage very well. At least two machines sold on the coast use this style cup.

The collapsible rubber cup is used on but one machine. "Two-chamber" teat cups are used on most pipe-line machines, and they consist of a cylindrical metal casing, fitted with an inside tube of sheet rubber something like that used in automobile inner tubes. Various combinations of vacuum, atmospheric pressure and compressed air are used in these cups.

In one of the machines, suction is applied first to the teat in the inner compartment, then the atmospheric pressure is admitted, the inner lining collapses and the teat is "massaged." Another make introduces compressed air at seven or eight pounds pressure.

"Which is the best machine to buy?" Naturally this is the question uppermost in the minds of most dairymen—and it is difficult to answer, for all the different makes have their good points.

And the experimental stage is past, so that even an inexperienced operator may be sure of satisfactory results. Proper care of the machinery, however, is essential to uniform success with any milker.—G. W. Fry

## For the Handyman

DISCARDED auto license plates make good shoe scrapers for the rear door.

If when digging a ditch for a pipe line one horse and a plow are used, the work will be facilitated greatly, as it will be necessary to throw out only the loosened dirt.

Two good feed hoppers for chickens can be made from an ordinary wooden box. Knock out the bottom, saw both ends through the middle and the sides of the box will now form the bottom of the hoppers. The boards taken from the bottom of the box are used as sides and tops. As the latter are flat they can be lifted off easily.—J. G. H., Puente, Cal.

# Which?

*By Jason Wells*

### THE CITY

Repellent, flinty pavement,
Intensifying heat, typifying cold—
Raucous roar of traffic, tearing at
sensitive nerve-ends—
Where all that's tranquil, delicate
Recoils in bruised bewilderment.
Milling human cattle,
Knowing not why peace and rest
Elude them.

### THE COUNTRY

As gentleness to great strength,
The whispering breeze to mighty
open spaces.
There are voices that speak low and
may be heard
By hearts that are in tune
And will listen—
Voices that disclose thrilling secrets.
And there beauty is a vibrant,
pulsing thing,
Sensuous and perfect,
Hotly desirable—yet standing in the
hollow of God's hand.

Will you GIVE the city life
Or TAKE it from the open?

(Written for ORCHARD and FARM. Copyright)

# Forming a Partnership With the Honey Bee

By W. B. Dickenson

WITH the exception of the actual desert regions, all parts of the Pacific Coast are admirably adapted to bee-keeping. The wealth of the Nation could be increased by millions of dollars annually if every family, conveniently situated, would keep a few hives of bees.

The sugar shortage during the war emphasized the value of honey as a sugar substitute. Especially in cake-making and in canning fruit is honey superior. Many persons consider fruit preserved with honey much more healthful and delicious than that put up in the ordinary manner.

And not only is the consumption of honey increasing at home. The export trade, already large, is checked only by lack of supply. Yet it is conservatively estimated that the honey wasted in California by the lack of bees to gather it exceeds the value of the gold produced!

The profit from intelligent bee-keeping averages from 100 to 200 per cent on the capital invested; yet it is at the same time a business upon which anyone with limited means may embark. As a hobby or pastime, furthermore, bee-keeping is at once the most interesting and fascinating of all.

THE WORKER THE QUEEN THE DRONE

### APPEALS TO ALL

It will be seen that honey production as business or diversion may appeal to all walks of life. The merchant or professional man and all who spend much of their time indoors, will find in bee-keeping a pleasant, healthful outdoor pastime, invigorating to mind and body.

The fruit grower should keep bees, not only for the value of the delicious fruit-bloom honey, but also because of the increased size of the fruit crops. As bees carry on their bodies the pollen or fertilizing substance, they aid most powerfully in the impregnation of plants.

In favorable seasons, fruit often will set abundantly, even if no bees are kept in the vicinity; but many springs are so unpropitious that often during the critical period of blossoming the sun shines for only a few hours. This is the season when the value of bees to the fruit growers is incalculable; in fact, only those can expect a remunerative crop whose trees are all "murmuring with the pleasant hum of bees." Many have observed the difference in the cherry and almond crops after a wet blossoming period in Alameda and Contra Costa Counties, for example, since bees have been more numerous in the vicinity.

### ON THE GENERAL FARM

The average farmer should keep bees to gather the honey now going to waste on his lands. Profit must attend this branch of a farmer's stock, inasmuch as bees work for nothing and "find" themselves.

In short, every person who wishes to engage in a light occupation which promises health, ease and independence should give this subject an earnest and candid examination.

A PROSPEROUS colony of bees at the commencement of the swarming season consists of a queen, a few hundred drones, and about 40,000 workers. The accompanying illustration will give a good idea of the three classes into which this insect community is divided.

The queen is a perfectly developed female and the mother of the whole colony. In the height of the swarming and honey-gathering season and under favorable circumstances the queen will lay 2000 or more eggs a day, equal in weight to her body. She is distinguished from the other bees by her form, size and color, being larger and darker colored upon the back than either the drone or worker in a colony of black bees, but much lighter in color than either drone or worker in an Italian colony, the larger part of her body being a light golden yellow. She is, in both species, of slender structure, with comparatively short wings and a long, finely tapered abdomen. The beginner sometimes has difficulty in finding the queen in a black colony, but seldom in an Italian.

> ### Announcing an Important Feature
>
> *IN recognition of the constantly increasing interest in honey production, ORCHARD and FARM has arranged for publication of a series of articles on bee keeping, written especially for this magazine by an authority with years of local experience.*
>
> *The articles of which this is a part are interesting and informative, and will appeal equally to the novice and experienced producer. The culture of the honey bee is known to have engaged the attention of man since the dawn of history, yet only within a few years, through the introduction of movable frames and other improvements, has this pursuit been rendered more certain of large returns upon small capital investment. Watch for more of these articles in future numbers.*—The Editor.

The queen never uses her sting, except on a rival queen, so there need be no nervousness in picking her up, when necessary, which should always be by her wings. Usually she lives from three to four years. If her death occurs when there are young worker broods or eggs in the hive, or if she is to leave the hive with a swarm, the workers construct large cells, supplying them with "royal jelly"; the eggs or larvae thus treated then develop into queens.

If from age or any other cause the egg-laying powers of the queen are impaired, the workers raise another to insure the population of the hive being kept up to full strength. In this case, mother and daughter queens live peaceably together in the same hive; in no other case does more than one queen remain permanently in the same colony.

### A LAZY LOT

The drones are more bulky, although somewhat shorter than the queen; they are much larger than the workers. When flying, their loud, boisterous hum easily is recognized. Being without a sac for carrying honey, or grooves on their thighs for pollen, they are physically unfit for performing any of the labors of the hive; and being destitute of a sting, they cannot assist in the defense of the stores against robbers. They appear to be called into existence at the approach of the swarming season to fertilize the young queens only. One curious thing about the drone is that he may go into any hive he cares to and no notice is taken of him, although a queen or worker entering any hive but their own are immediately killed or driven out.

### THE "WORKER" BEES

Although the workers are the most diminutive in size, we are constrained to regard them as the most wonderful class in this marvelous family. Upon them devolves all the labor of collecting and defending the stores, building the comb, feeding and protecting the queen and brood, and expelling the drones when they are no longer necessary to the well-being of the colony. In short, they rule and regulate the whole economy of the hive, performing all of its offices except that of direct reference to the reproduction of the species. As regards the sex of the workers, modern observers agree in classing them as undeveloped females; they are incapable of fertilization by the drone, yet in a queenless colony one will sometimes be found laying eggs, which, being unfertilized, produce drones only.

[In future articles, Mr. Dickenson, who is manager of the Apiary Department of the Diamond Match Co., Chico, will discuss various factors and steps in bee-keeping, laying particular emphasis upon the practical side, and anticipating the questions of the novice.—Editor.]

## How to Recognize Two Common Bee Diseases

IF neglected, hives soon become infected with either of two very dangerous and contagious diseases which affect the brood (immature bees).

American foul brood and European foul brood, both are caused by germs which enter the wax and honey. With the honey, the germs find their way into the larvae, which soon die, and if not at once removed from the cells begin to decay. If the disease [illegible]s too far without treatment, [illegible]e the bees leave the hive. [illegible] nd[illegible]ers other colonies, for [illegible] from other hives remove the [illegible] from the deserted one, infecting [illegible]. In this way the trouble [illegible].

[illegible] stages the American [illegible] detected by a very disagreeable odor. The diseased cells appear sunken, showing perforations here and there. If a toothpick is thrust into one of the cells, then withdrawn, the dead matter will cling to it and stretch to a length of four to six inches. Here and there a dead larvae will be found with its tongue extended to the roof of the cell. American foul brood usually attacks larvae which are in capped cells, but when the disease is advanced far enough it will attack the larvae in uncapped cells.

European foul brood in its first stages attacks only the larvae in uncapped cells, attacking those in capped cells in its advanced stages. The dead larvae have a yellow appearance, while the dead of the American foul brood are brownish in color.

When the disease is present, the brood will be scattered, because of the dead brood and a poor queen. A good queen will keep a large colony which can remove the disease.

If a toothpick is inserted into the body of a dead larvae the dead matter will stretch, though not so much as in the case of the American foul brood. When the thread breaks it will snap back as an old Mason jar rubber would when stretched. European foul brood generally appears in the spring, mainly in the weaker colonies.

If you are unfamiliar with bee diseases it will be beneficial to ask your county bee inspector or some reliable beekeeper to look at your colonies. The county inspector's services are free.—Clayton Green, Chaffey College of Agriculture.

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# A Remarkable Desert Forage Plant

## Enthusiastic Ranchers Tell How Rhodes Grass Conquers Alkali and Weeds

By H. C. Davis

FREE water to Imperial Valley farmers who will plant Rhodes grass!

This is the strong indorsement of a remarkable plant given recently by the Irrigation Board of Imperial Valley.

Rhodes grass has produced wonderful results in reclaiming both white and black alkali lands, as well as in feeding livestock. In recognition of its unequaled properties, therefore, President Nickerson of the Imperial Board has announced that all ranchers who will seed unproductive land to Rhodes grass this season will be given, free of charge, sufficient water to establish a good stand.

Actual instances of what this crop will do, both on good land and on some of the poorest alkali soil of that section, are plentiful on every hand and many progressive dairy men and stock farmers of the Valley have been planning, even without this latest incentive, to plant at least a portion of their acreage to Rhodes grass this year. The high yield and the value of this crop as a balanced ration, both for dairy cows and for work teams, promise to bring about its general adoption.

### A FARMER'S EXPERIENCE

J. T. Wight, of the Wight-Grondenberg ranch, southeast of Holtville, whose experience in Imperial Valley dates from his purchase of land from the Government in 1901, previous to the advent of either railroad or irrigation in that then desert spot, is one of the men who began experimenting with Rhodes grass several seasons ago.

Rhodes grass, Mr. Wight believes, offers an opportunity for those who have, or would buy, what is now considered practically worthless land, to make larger profits within the coming few seasons than were made from the better homestead desert land in the early days. He states as his opinion that no land is so alkaline that it cannot be "brought back" by the planting and proper care of Rhodes grass, and says furthermore, that such land can be put into paying condition the first year.

### ON BLACK ALKALI

Mr. Wight is interested in property near the East Side Highline irrigation canal which he and his partner, H. L. Powell, considered practically worthless two seasons ago. They were induced to try Rhodes grass. They put in 10 acres the first year, in August, on a barren stretch, thickly crusted with black alkali. At the end of six weeks no plants could be seen. They were disappointed, but irrigated again, determined to give the new crop every chance.

At the end of 12 weeks this Rhodes grass was waist high!

The stand was "spotted," but Mr. Wight noted that isolated plants in the very hottest parts of the beds of ash-like alkali were thriving and were sending out runners which were making rootings on all sides. He noted, too, that along the edges of trenches used for irrigation the plants came up thickly. This grass was pastured all winter, and in the spring another planting of 20 acres was made, which was cut four times during the summer.

The last irrigation was in September, and the piece was pastured all winter. It has had but one irrigation this spring, in May.

### WHITE ALKALI CONQUERED

Such instances have multiplied within the past two seasons in all parts of the Valley. One discouraged rancher in Dixieland, J. W. Taylor, whose garden last summer presented the appearance of Alaska snowfields, tried the plan of planting Rhodes grass in trenches. He furrowed out 16 rows and irrigated down the furrows. He then planted the seeds down the furrows and irrigated again. This method caused the salt to rise to the ridges between the planted rows and aided in starting the seeds, he said. But it is pointed out that the seed should be kept very wet until plants appear.

Mr. Taylor kept a cow in his garden all winter, pasturing on 16 rows of Rhodes grass. Even before the first irrigation in the spring, the grass was sending out a mat of runners which were beginning to take root in spots, even up on the salt-covered ridges. A single plant, taking root under just such unfavorable conditions, and carefully watched for experimental purposes, has been observed to establish more than a hundred side plants during a single season, from the rooting of runners!

### ERADICATES BERMUDA

Unlike Bermuda grass, Rhodes grass sends out these runners only above the ground. For this reason it can be eradicated without difficulty, if so desired, by pasturing closely, without irrigation, and then plowing. The growth of the runners above ground with irrigation is so rapid and dense, however, that it is claimed for Rhodes grass by many ranchers who have had the fortunate experience that it will kill out Bermuda grass as well as many varieties of obnoxious weeds.

In fact, there is much testimony to show that Rhodes grass can become quickly established in a field entirely taken by Bermuda, by the simple method of broadcasting the seed after an irrigation, but without cultivation. The seed, drifting to the soil at the roots of the Bermuda, are said to take root and grow thriftily. The Rhodes grass then grows tall rapidly and sends out a smothering blanket of runners which effectually will choke the Bermuda and other pests, it is claimed.

But why anyone would want to eradicate Rhodes grass is difficult for such stockmen as M. Garcia, northeast of Holtville, to understand. He has a six-acre piece now in its third year. This Rhodes grass pasture last season demonstrated what the plant can do, planted in *black alkali*. Planted the previous summer, and, it must be confessed, having received very indifferent care, it began to demonstrate to Mr. Garcia about a year ago that he had a real pasture where there had been no pasture before. Alkali to the right of it, alkali to the left of it, but it "marched ahead" undaunted, and on July first he put on 18 head of dairy cows.

On October 1st, after continuous pasturing for three months by these 18 cows, Mr. Garcia sold his pasturage to stock men who pastured on this six acres of Rhodes grass 52 stock cattle for 21 days, with but one irrigation. By the middle of June, after the weeds and clover and first growth of grass had been cut, the Rhodes grass had made a dense stand, free of weeds, ready for another cutting.

### AS HORSE RATION

Mr. Garcia testifies that he has fed working teams on Rhodes grass exclusively and has kept them in better condition than when feeding alfalfa hay and corn. He states that he believes Rhodes grass will feed four times as much stock as alfalfa during six months of the year.

C. E. Chubb, also farming in the section northeast of Holtville, has a stand of Rhodes grass planted on bad alkali land. Because of the hot soil in which it was planted, the Rhodes grass came on slowly last summer when it was first planted. It thickened up rapidly before the end of the season, however, and he pastured it all winter. This spring, with no irrigation after September, it began growing vigorously, and even before the first irrigation was sending out masses of runners which rooted well and gave promise of a fine stand this summer. Mr. Chubb fed his teams on Rhodes grass alone through the weeks of heaviest farm work this spring and early summer, and states that his six horses are in as good condition as at the start. He says that his horses did not eat Rhodes grass readily at first, but soon acquired a taste for their new ration.

*In Imperial Valley*

*Above—Rhodes grass on alkali land. Natural condition of soil shown at left. This field, on the Garcia ranch, has been producing for three years. Below—A single Rhodes grass plant, showing early spring growth in patch of black alkali. Over 100 rooted plants have been started from runners emanating from a single plant in one season. Dealers advertising in ORCHARD and FARM have Rhodes grass seed for sale.*

### PLANTED WITH ALFALFA

Although Rhodes grass probably never will be conceded to surpass alfalfa as a permanent pasture, it seems probable that it will attain to a wider range of usefulness. Another use suggested for it by A. S. Greenleaf, who is trying the experiment this season near Holtville, is to plant it at the ends of alfalfa lands where the irrigation water kills out the alfalfa. Mr. Greenleaf is transplanting the roots to these bare spots and believes he will soon have a green cover of the fine hay in these unproductive places.

The hardships which it will endure assuredly are a big factor in the growing popularity of Rhodes grass. Even with slight irrigation, and when heavily pastured, it will survive on the poorest soil, until such time as it receives sufficient moisture again to renew rapid growth. Instances can be cited where hogs have pastured it through the winter, rooting it up unmercifully, and keeping it eaten off even below the surface of the ground, and yet, at the first opportunity, it has hastened to recover from the mistreatment and has made a fine, dense stand after the first irrigation.

### ON BETTER SOILS

On good soil, many experiments have shown, it will carry far more than the conservative estimate of 3 head of cows per acre, for eight months in the year. It can be cut every 30 days during the summer season, and eight tons per acre of hay may be reasonably expected.

Altogether it seems probable that to Rhodes grass will be conceded an important part, within the coming few seasons, in the problem of rehabilitating land now lost to production because of alkali encroachment as well as increasing the quantity and quality of forage production on good soils.

# Practical Potato Pointers

INTERESTING and valuable information on potato growing is contained in a report prepared by Assistant Farm Adviser B. C. Bougher of Los Angeles County, who describes the methods that have brought success to J. L. Olsen of Van Nuys and other leading potato producers of the Southland.

"When it comes to the selection of seed," asserts Mr. Bougher, "Olsen ranks among the foremost potato experts in this part of the State. He has gone into this subject to the minutest detail. By using home-grown seed and subjecting it to a process of careful selection, he secures a highly improved strain every three years."

Discussing Mr. Olsen's method of selection, the report shows that he first started out with the 10 best potatoes which he could select from the previous year's crop. These were cut into four equal parts and planted in a single row in his seed-selection plot. The 10 best hills from these original 40 hills again were selected and cut into four pieces and planted, making 320 hills.

The rest of the hills were planted to make a half acre in the seed plot. From this half acre enough seed was secured to plant the 10-acre plot, which furnished the seed for the year's planting. At each harvest the 10 best hills in turn were selected, it being necessary that they have at least eight uniform tubers to the hill; these again were planted in the seed-selection plot. The continuation of this method gives a much improved strain every three years.

"Mr. Olsen has shown," asserts the assistant farm adviser, "that proper selection of home-grown seed gives results superior to those obtainable with any 'imported' seed."

### EFFECT OF COVER CROPS

The effect of green manure cover crops upon the yield of potatoes has been graphically demonstrated on the Olsen ranch. A field in which a crop of melilotus indica was plowed under this spring showed an extremely uniform and thrifty growth of vines, with a dark, rich color. The tubers were quite uniform in the hill and were of good size and excellent quality, giving every indication of a heavy yield. There was very little indication of "off-type" hills and practically no evidence of curly leaf or other prevalent troubles. The salient feature of this field is its demonstration that a green cover crop, such as melilotus or vetch, is a very cheap and efficient method of maintaining soil fertility, uniform moisture content and availability of sufficient plant food to mature a heavy crop of potatoes.

It was quite plain that the plant food which was turned under in the form of a cover crop was quickly made available for the use of the growing crop, not to mention the effect of the cover crop in improving the physical conditions of the soil. The soil-solvent created by the decomposition of this green organic matter aided materially in dissolving the insoluble plant and mineral food

(Continued on Page 31)

# New Fertilizer Is Million Years Old

IS THERE a mysterious, new life-giving force in the remarkable lime deposit recently discovered at the Weston ranch, near Lomita in the Los Angeles Harbor district? An observation tour through the citrus belt where the lime had been applied to agricultural lands brought up this question in the minds of a number of students of agriculture. The remarkable results secured almost immediately after application of this decomposed marine shell seem to point to the presence of some ingredients other than mere lime.

Analysis of the material, in fact, discloses the presence of considerable quantities of phosphates and sulphur and iodide. And while no official intimation has been issued, it has been suggested that there is some form of radio-activity or other unusual property in this remarkable substance.

QUICKLY AVAILABLE

At any rate, the lime appears to be unusually available and the quick results would seem to indicate that either the burned and slaked varieties, require considerable time in which to act. The marine shell lime seems to "start something" the minute it touches the soil.

While the use of lime in nearly all parts of the United States has increased tremendously during the past few years and its value in almost any form for correcting acidity and improving tilth is generally recognized, still the discovery of this remarkable deposit has aroused the greatest interest throughout the country.

ANCIENT SKELETONS

One interesting feature in connection with the deposit is the presence of the skeletons of, pre-historic animals. In blasting away portions of the hillside, workmen have uncovered well preserved bones of animals, said by scientists to have lived over a million years ago, including saber-toothed tigers, enormous reptiles and gigantic shellfish, sea and land life being strangely intermingled. One interesting find was the tooth of a shark, said to be larger than any other ever discovered.

*View of Excavation at Torrance Quarry*

*From this great deposit thousands of tons of decomposed shell have been removed. The product, analyzing over 90 per cent lime, has been spread upon orchards, lawns and fields throughout Southern California. The strange "beast" in the foreground is our artist's conception of one of the prehistoric animals, bones of which have been unearthed in the quarry.*

Acts almost immediately in releasing plant food already in the soil, or actually adds to the soil quickly available fertilizing constituents.

A veritable mountain of this material has been discovered in Southern California. Thousands of tons have been crushed, loaded on great trucks and distributed throughout the citrus belt.

Through its magic touch adobe soil has been made tractable, sandy soils have been given substance, gophered lands have been "brought back," entire orchards have been forced into increased production, young trees have shown a remarkable growth, lawns have been revitalized, flowers and vegetables made to thrive, according to the testimony of those who have experimented with it.

Undoubtedly the most remarkable attribute of the decomposed marine shell lime is its quick action. Most lime, including ground limestone and acts almost immediately in releasing plant food already in the soil, or actually adds to the soil quickly available fertilizing constituents.

Undoubtedly the discovery of this vast bed means much to California agriculture and horticulture, for the action of lime is to build up the soil, a process which is cumulative; that is, if lime is added consistently the soil acquires more productiveness year by year. And while few would have the temerity to suggest that the use of marine shell lime will replace other methods of adding fertility, authorities agree that it will do much to place the productivity of our soils upon a more permanent basis.

Thus do the ancient oceans and the animals of forgotten ages contribute to the wealth of this generation and bring about the production of sweeter oranges, larger vegetables, greener foliage and more thrifty trees and plants.—Albert J. Mason.

## Is This the Time to Skimp on Fertilizer?

[illegible] that sales of commercial fertilizers have been very [illegible] during the past year, especially in some citrus districts. Comparisons between prices for fertilizer [illegible] have induced [illegible] to curtail their purchases.

[illegible] even though [illegible] assert that it may require years for an orchard to [illegible] in the condition and capacity lost through a few short months of neglect. This is a thought deserving serious consideration.—A. J. M.

# Harvest—and Your Fall Work

AS HARVEST approaches and passes, with the finishing-up of work on this year's crop in sight, another beginning looms up just ahead—fall plowing—and commands its share of attention, even in the crowded hours of harvest. Where crops grew this year there will be, in most cases, crops again next year. And in many places there will be crops on land that was unproductive this year.

Forward-looking farmers are thinking about this—planning just what land is to be plowed for next year's crop and what additional machinery will be needed in order to handle the work in a way that will bring the greatest profit return. Are *you* equipped to start the new beginning right? To carry through your fall work the way you'd like to do it?

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# EDITORIAL DEPARTMENT

## Timely Topics among Farm Folk

### Rural Credit Bill

THE manufacturer or dealer who requires credit has access directly or indirectly to the greatest financial centers. But the farmer as a rule is tied hand and foot to his local bank.

ORCHARD and FARM repeatedly has emphasized the necessity for a better standardization of farm credit paper so that it will be handled on an equal basis with commercial paper in the financial markets. This is the idea behind the "Kenyon Rural Credits Bill."

The measure has been approved by twenty-two of the Senator's associates from farm States as well as by many important farm ogranizations. Senator Kenyon's plan would reduce interest rates, and provide the machinery for capitilization of honesty, energy, frugality and farming experience. The bill provides also for "multiple insurance," the purpose of which is to create security for the farmer who has accumulated no property, but who requires credit in order to succeed in his business.

Senator Kenyon's vision is worthy of unanimous and hearty support from all branches of agriculture. Let us hope his bill is acted upon favorably by the Congress.

### The Redwoods

REPORTING many accomplishments for the past year, the "Save the Redwood League of California" calls attention to the increasing destruction of these famous monuments of beauty and urges all nature lovers to aid in the work of conservation.

While reserves have been created about the historic redwoods in various districts, many age-old trees are doomed to destruction unless more concerted efforts are made to save them, the League asserts.

More than 4000 members now support the work of this organization, which received and expended over $10,000 during 1920. While it would not seem advisable to advocate total cessation of redwood timber operations, no one could deny the importance of this movement within reasonable limits.

Without shutting down suddenly upon a great source of valuable lumber, let us make sure that enough of these forest monarchs are retained to guarantee their existence to posterity.

We must not let the mighty redwoods go the way of our once bountiful game. The office of the Save the Redwoods League is at 430 Library Building, University of California, Berkeley. The secretary treasurer is Robert B Sproul. ORCHARD and FARM subscribers are urged to interest themselves in this movement.

### There Is Much to Learn From Animals

PITY the man who scorns to take lessons from the animal world. Perhaps it is because of their contact with, and study of animals, that farmers as a class are so free of the petty jealousies and mental turbulence characteristic of city dwellers.

And no boy or girl, city or country-bred, should be deprived of the pleasure of keeping pets and studying wild or domestic animal life. It has been said that it is every boy's inherent right to own a dog. Many tributes have been paid to this friend of man, but none, perhaps, is more appealing than the following, written by President Harding when he was a newspaper editor:

"Hub—Just a Dog: It isn't orthodox to ascribe a soul to a dog. But Hub was loving and loyal, with a jealousy that tests its quality. He was reverent, patient, faithful. He was sympathetic, more than humanly so sometimes, for no lure could be devised to call him from the sick bed of mistress or master. He minded his own affairs—especially worthy of human emulation. He was modest and submissive where these were becoming, yet he assumed a guardianship of the home he sentineled until entry was properly vouched. He couldn't speak our language, though he somehow understood. But he could be

"EVEN A COW CAN TEACH US A LOT OF THINGS!"

Cartoon Drawn for ORCHARD and FARM by Karpe.

and was eloquent with uttering eye and wagging tail and the other expressions of knowing dogs. No, perhaps he had no soul, but in these things are the essence of soul and the spirit of lovable life.

"Whether the Creator planned it so or environment and human companionship made it so, men may learn richly through the love and fidelity of a brave and devoted dog. Such loyalty might easily add luster to a crown of immortality."

The care of farm animals, too, develops qualities which make for better citizenship.

Surely no one questions the wonderful value of the children's pig and calf clubs, and certainly no wise farm father overlooks his wonderful opportunity to give animal life into the care of the youngsters.

The study of animals is an inspiration both to children and adults. As an interesting example, have you ever noticed that almost every animal stretches, upon arising from sleep? A famous physician says that man makes a mistake in not doing likewise. Try it tomorrow morning and see how much better you feel. Stretching the muscles relieves the congestion of the night's rest, increases circulation and promotes well-being.

Then there is the lesson taught by such birds as the pigeon and wild goose, each of which is faithful to its mate until death.

And, of course, there is the well-known characteristic of the mule, who in spite of his stubbornness and amusing traits, has enough sense not to over-eat. It is said that no mule, even though allowed access to an unlimited amount of grain, will eat more than is good for him at one time. Perhaps there are exceptions, but experienced horsemen assert this characteristic is typical.

And so it goes. There are endless examples. Farmers have a great many reasons to feel sorry for those who must spend their lives out of contact with Nature. No one need be ashamed of loving animals

### Bud Selection

SOMEWHAT startling is the recent statement of Prof. E. B. Babcock of the University of California that the results secured through bud selection with citrus trees do not justify the conclusion that similar attainments are possible with deciduous fruits.

Professor Babcock even goes so far as to criticize severely nurserymen who claim superior qualities for their deciduous stock, simply because bud selection is practiced. "The super-yielding tree of apple, peach or plum which will beget a super-yielding orchard, has yet to be discovered," he says. "We lack sufficient data as yet to justify any conclusions regarding the practicability of increasing the yield of deciduous fruit through bud selection."

This is putting it very bluntly, but Professor Babcock takes care to point out that his statements should not be interpreted as antagonistic to bud selection as an important phase of modern fruit growing. Still he makes it plain that the development of this new science has been capitalized in some cases by nurserymen at the expense of the fruit grower.

It is possible, in fact, that a few buyers have paid high prices for bud-selected deciduous stock which, if Professor Babcock's conclusions are justified, was worth no more than ordinary, thrifty young trees from healthy orchards, true to the type desired.

In this number appears a very important article by Professor Weldon, Horticultural Editor of ORCHARD and FARM, dealing with this subject. Be sure to read it!

### Do You Vote?

IN almost every community there is an individual who is willing to explain at any time just what mistakes "they" are making in the administration of the Government.

As he drives around a stone in the road for the hundredth time he says, "They ought to fix this highway." Again, he wonders why "they" don't do something about reducing taxes.

Who are "they?" What is the Government? Did your vote help to put present office-holders in their seats? Or are you too busy to take an interest in politics? Perhaps less "they" and more "we" would improve conditions. Think it over.

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## SOURCES of INFORMATION
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Alcohol Test as Means of Determining Quality of Milk for Condenseries ..... 944
Nitrogen and Other Losses During the Ensiling of Corn ..... 953

### Apricot Gummosis

WILL you please advise me what to do for an apricot tree that has gummy stuff oozing from the trunk and limbs?—Mrs. E. Mansean, Fokom, Calif.

**Reply by George P. Weldon**

There are several things that cause gumming of the apricot. One very serious trouble is known as bacterial gummosis. This disease is caused by a bacterial organism working in the sap of the tree, and the effect is very similar to that of pear trees that are diseased with blight. The cure of the trouble consists of the same remedy used with pear blight; namely, the removal of affected branches when they are discovered.

Another form of gumming is caused by what is known as the shothole borer. This pest seldom, if ever, attacks the trunks of perfectly healthy trees but when trees are injured by sun scald or, in fact, anything else which causes a drying of the bark, this borer is almost sure to get in its work. The death of trees is frequently hastened, although, as has already been stated, the borer injury is usually secondary.

### Varieties of Figs

A FRIEND of mine has two fig trees; one is a common Mission Black and the other looks, bears and tastes almost the same but has fruit fully twice as large. Is there more than one Mission Black originating from the planting of seedlings in early days or is this larger fig the San Pedro Black?—L. B. Wright, Santa Rosa, Calif.

**Reply by George P. Weldon**

Standard reference books list a number of black figs. In addition to the Black Mission, there is a Black Bulletin, Black Smyrna, Ischia (black) and San Pedro (black).

Another variety which is being advocated by some, for Southern California planting especially, is the Kadota.

There would naturally be a great variation in seedlings from the Black Mission fig and it would take an expert on varieties of figs to give you the information which you request regarding your friend's tree. I would suggest that samples of this fig be sent to the Department of Pomology, University of California, where it may be possible for them to identify it.

### To Mend Water Tank

IT IS a difficult matter to mend a water tank successfully, but I have found the following method entirely satisfactory. Put in a layer of concrete two to four inches thick, using a little more cement than for ordinary work. Tamp it firmly around edges and let to set. A little water may drip through the first day, but after that it will be as good as new. I mended a 500-gallon tank in this manner, and although the leaks were very large, it was absolutely tight.—Emma J. Torbert, Stockton, Calif.

Information Reliable—"We have been subscribers to ORCHARD and FARM for a number of years, and always find it in our home as it is a valuable and reliable information [illegible], Calif.


# A PAPEC STORY

By

PETER B. KYNE

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Contributing Editor for Central and Northern California

**Judge Shields Says**—"The introduction of a new bull of desirable strain into a community will do more good than all the politicians can do in a generation."

That remark made to me some years back by Judge Peter J. Shields of the Sacramento Superior Court, is one that I have never forgotten. It at once made me feel how much better livestock means in the progress of the human race and of how little importance are the political strife and verbal warfare, the "movements," the "urges," the "drives," about which we work up such a fret when the fever is on. Judge Shields is known personally to probably more farmers than any other man in California. He is a kindly man with a wonderful personality. His philosophy is the sort that gets to the root of things; when Judge Shields explains it seems that all the cobwebs and confusion are brushed aside. He is always in great demand as a speaker before livestock men. Probably Judge Shields' most outstanding work was to arouse interest which led to the establishment of the University Farm at Davis, Yolo County. While he presides regularly in the Superior Court, the Judge is also a real farmer with a ranch in Sutter County. There he has his little herd of registered Jersey cattle. He fairly loves the Jersey.

**More Money for Experimental Work**—It will be possible to carry on more experimental work much needed by California farmers at the University of California Farm at Davis and at the Riverside Experiment Station during the next two years, as Governor Stephens recently signed a bill allowing an additional appropriation of $450,000 for this work. This will give the College of Agriculture $2,450,000 for the next two years. Some very important work having to do with farm mechanics and with animal husbandry has been neglected for many years because of scant funds. California has lagged behind other important agricultural States on this account. The Animal Husbandry Division at the University Farm wants to find out the most economical way of producing beef in California. Undoubtedly this State has an opportunity to turn out an abundance of quality steers, but for lack of knowledge of just how to feed, this branch of the farming industry has not gone forward as rapidly as it might have.

**"Westward Ho!"**—It recalls to Californians the early days of the prairie schooner to read of the departure from New York recently of 128 families in 128 automobiles bound for Idaho. These people are leaving the city life behind and intend to become farmers in Idaho. But they are moving by gasoline power instead of by the slow-traveling prairie schooner of early Western history. Nothing more thrilling than blow-outs confronts these immigrants, while those who came West in an earlier day braved a thousand unknown dangers, principal among which was attack by hostile Indian tribes. The auto caravan has as its destination a tract of land south of Twin Falls, Idaho, which was sold to the immigrants by former Secretary of Agriculture E. T. Meredith.

**Tons for Home Brew**—The raisin is a great vehicle for the home-brewer. The California Associated Raisin Company estimates that home-brewers use 16,000 tons of raisins a year.

**How "California" Came to Be**—Do you know how the name "California" came to be? It is the invention of a Spanish romancer named De Montalvo, who said it was an island "very near to the terrestial paradise." Cortez used the name of "California" for an unknown region of what was then northwest Mexico, as it seemed to fit the description of the island mentioned in the Spanish romance.

**Colonel Rhoades' Voice**—They say that Colonel Ben A. Rhoades of Los Angeles, who cries the majority of the purebred livestock auction sales in California, has a throat lined with puncture-proof rubber, or some such composition. In any event, Colonel Rhoades is able to keep going day in and day out, crying sales with no apparent trouble with his voice. The truth is that Colonel Rhoades is exceedingly careful with his health, as are most successful men who remain in any "game." It is Colonel Rhoades' habit to retire at 9 o'clock every night and it takes something mighty important to keep him out of bed after that time. Colonel Rhoades is without question one of the leading auctioneers in America, if not the best of them all. He has something which many members of his profession lack—a dignity that inspires confidence in the bidder. He gets over the humor without crude circus stuff and he keeps his auditors interested and enthused without resorting to flapdoodle.

**Started at the Bottom**—Not so many years ago Joseph DiGiorgio, the dynamic head of the new DiGiorgio Fruit Corporation, representing assets of more than $15,000,000, and into which recently was merged the Earl Fruit Company, the Producers' Fruit Company and numerous other orchard and shipping organizations, was trucking fruit from steamers on the docks at Baltimore. DiGiorgio had come over from Italy to make his fortune in America and he started at the bottom of the ladder. Today he is one of the most influential and highly respected men in the fruit industry of America. The DiGiorgio Fruit Corporation owns properties in California, Oregon, Idaho, Washington, Florida, Georgia and Tennessee, as well as in Cuba and Jamaica. DiGiorgio now spends a great deal of time in California. The principal shipping concern in the amalgamation is the Earl Fruit Company, with its main offices in Sacramento.

**Wants a State Herd**—R. L. Ruddick of Minneapolis, a member of the executive committee of the Twin Cities' Milk Producers' Association, has been in California for some time investigating co-operative marketing of milk here and looking into California land projects. Ruddick is a breeder of registered Holstein cows. He is particularly interested in inducing California Holstein breeders to send a State herd to the next National Dairy Show. Ruddick has words of praise for what has been accomplished in California with Holstein cows and he says that one way to capitalize on the prominence already attained is to follow it up and send a State herd to the National Show. In addition to being an active dairyman and breeder of purebreds, Ruddick is a member of the Northwest Development Association, having its headquarters in Minneapolis.

**Water and Fruit**—"I once heard a professor deliver a lecture on the composition of fruit and learned there that fruit is largely water," said Ernest Gammon, former president of the Sacramento County Farm Bureau, the other day. "It occurred to me then that I might as well be selling water as fruit, so I have given my


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[illegible] orchard plenty of water ever since.' Gammon is a practical business farmer and he gets a remarkable yield of pears from his orchard on the Sacramento River just south of the Capital City. In addition to pumping onto his orchard land an abundant stream from the Sacramento, Gammon has his entire orchard planted in a permanent cover crop. This he pastures throughout the season, for he has hogs and sheep. The animals get the windfall pears as well as the cover crop plants and they leave behind their contribution to the fertility of the soil.

**Shipping Fruit by Water**—The attention that shipping gained through the war undoubtedly will have a widespread effect on the fruit industry of California and also upon the interchange of fruits between countries. We have been talking for a long time about shipping California fruits to South America. But a few weeks ago a cargo of Chilean fruits, the tag end of the season, which is opposite ours in the Southern hemisphere, reached New York. Fruits now come to America from Italy and Spain to compete with the California product and it is said that some day, if the British States of the Antipodes get the Mediterranean fruit fly cleared up, we may expect fruits from Australia and New Zealand. But these fruits from the Southern hemisphere need not come into competition with ours. Instead we may look forward to trading fruits with these countries. In the meantime, however, the most important immediate result of this interest in shipping will be the opening of cheaper transportation to California fruits by water through the Panama Canal. At a meeting recently in Seattle representatives of fruit growers of the three Pacific Coast States met and offered to pledge 9000 carloads of apples, oranges and lemons if coastal carriers will install cooler space in their freighters.

**Big Problem Solved**—It is possible now to proceed with the digging of potatoes and feeding the baby since Professor T. J. J. See has determined, after eighteen years of study, that the difference in length between the Polar and the Equatorial diameter of the earth is 1-298.3 of the Equatorial diameter instead of 1-294. This is stated to be a "notable triumph of science." We suggest that Professor See now start answering the Edison questionnaire or solving some pressing farm problems.

# Lure of the Western Berry

By J. L. Stahl

HORTICULTURIST, WESTERN WASHINGTON EXPERIMENT STATION

## Part III. — Propagation and Training of Red Raspberries

THE usual method of supporting raspberries is by means of a trellis, composed of two or more lines of No. 12 or 14 wire. Sometimes the wires are strung on cross pieces of 1x4-inch, or 2x4-inch lumber, nailed to upright posts.

Another method is to fasten the wires directly, by means of staples, to the sides of the posts. Seven-foot posts set two feet in the ground and 30 or 35 feet apart commonly are used. It is important that the posts be set firmly, and the hole should be large enough to allow for tamping the soil.

It is well to begin tamping after the first shovelful of dirt is placed in the hole and to puddle with water where available.

TRAINING RASPBERRIES

Raspberries usually are trellised at the beginning of the second season of growth, 4 to 8 fruiting canes being allowed to the hill. While some growers instead of trellising, prefer to cut off one-half of the fruiting canes at a height of about 6 feet, this method is not generally followed, the berries being larger but not as early. Two systems of training are employed.

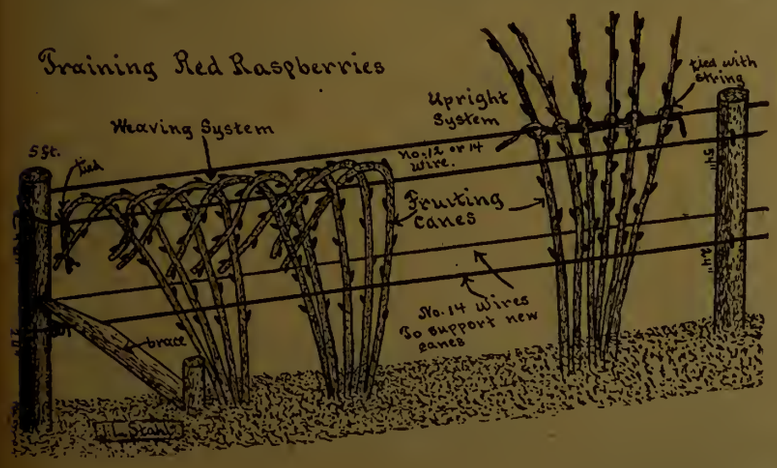
WEAVING SYSTEM

The weaving system is illustrated in the accompanying cut, fruiting canes are bent over and woven to the wires on either side of both sides.

The wires for these canes are strung at about 54 inches from the ground. Wires also are placed at a height of 24 or 30 inches, to aid in holding the young canes in place during the early growing season.

When weaving is done on one wire, the upper wire serves merely to hold the young canes in place after they have reached that height. Picking is accomplished mostly from one side. Where weaving is practiced on both upper wires, however, half of the canes in each hill are trained to one wire and half to the other. This plan gives greater spread between canes on the wires and allows picking from both sides.

The weaving system is an easier and more rapid method of training and when well done usually is very satisfactory.




UPRIGHT SYSTEM

In the illustration, the upright method is shown at the right. It requires a similar trellis, but the fruiting canes instead of being woven to the wire, are left upright and tied with a heavy string.

When in fruit the upper part of the canes are bent down within easy reach of the pickers. The young canes growing upright are held between the upper wires during the picking season and are not readily injured. By this system training also can be done either on one or both upper wires.

The fruiting canes may be removed from the field and burned after harvesting or just before training the new canes to the trellis in the spring. Lateral growth of raspberries, as a rule, is removed entirely.

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Ever roll up a cigarette with Prince Albert? Man, man—but you've got a party coming your way! Talk about a cigarette smoke; we tell you it's a peach!

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*Prince Albert is sold in toppy red bags, tidy red tins, handsome pound and half pound tin humidors and in the pound crystal glass humidor with sponge moistener top.*

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No matter how bad your ailment, or how long standing, we will be pleased to have you try it at our risk. For full information write today not tomorrow. Radium Appliance Co., 624 Bradbury Bldg., Los Angeles, Calif.


*When Writing to Advertisers Please Mention Orchard and Farm*

# Should Prunes Be Dehydrated?

By Arthur W. Christie

INSTRUCTOR IN FRUIT PRODUCTS, UNIVERSITY OF CALIFORNIA

CALIFORNIA is the home of the world-renowned prune, formerly referred to as "the boarding house strawberry" but recently elevated to an imposing position among foods by the untiring efforts of the California Prune and Apricot Growers.

A. W. Christie

The ever-increasing area devoted to prunes in California now exceeds 140,000 acres and the crop is the most valuable of any of our deciduous tree fruits. Unlike most other fruits, prunes are sold neither fresh nor canned, and the entire crop must be marketed in the dried form.

For many years prunes remained at a low price level until the advent of the cooperative growers' association. The California Prune and Apricot Growers have been instrumental in improving the general quality of the pack and in introducing new prune products such as pitted prunes, canned prunes, prune jam, etc. Also they have advertised extensively the merits and manifold uses of California prunes. The result has been that despite the present condition of the world's markets, prune production is being maintained at a profitable level. The growers recently have expressed their confidence in the association by "signing up" 82 per cent of the State's prune acreage. With such a showing of cooperative strength it is necessary only to produce prunes and prune products of high quality and keep them before the consumer by systematic advertising in order that prune growing continue profitable despite its steadily increasing volume.

### IS SUN DRYING SAFE?

Unlike the prunes of the Pacific Northwest, the California product is dried by the old established process of sun-drying and since the drying season falls in September and October, the prunes are at the mercy of early fall rains which in years such as 1918 cause millions of dollars of loss through mould and fermentation. Even in favorable years, growers often are caused much worry and extra labor in the stacking of trays during threatening weather.

### DEHYDRATION ESTABLISHED

The dehydration of prunes already has become an established industry in California. Many modern dehydraters have been erected in the past few years and the tonnage of dehydrated prunes is increasing rapidly. Not all of these prunes have been of the best quality. In some cases this has been due to the inefficiency of certain types of dehydraters, or to the inexperience of the operator.

In other instances, rain-damaged prunes have been salvaged by artificial drying and an inferior product was dehydrated. Such occurrences unfortunately have resulted in an unjust antagonism toward dehydrated prunes on the part of certain [illegible]

*The Dehydrating Plant in Action*

*Above—Entering prunes in the $30,000 Evaporator of the Natco Dehydrating Co., Healdsburg. Below—Evaporator erected for George Sherriffs, Healdsburg, and successfully used last year for prunes and grapes.*

makers. However, a considerable number of correctly-constructed and operated dehydraters have demonstrated that dehydrated prunes of highest quality can be produced economically. The recently-organized Pacific Dehydrator's League is doing all in its power to standardize dehydration, so that only properly dehydrated fruits will be sold as such.

RESULTS ARE ENCOURAGING

The Fruit Products Laboratory of the College of Agriculture has followed closely the development of dehydration

*Sorting Rain-Damaged Prunes. A Dehydrator Makes This Unnecessary.*

### *Startling Facts*

***CAREFUL investigations during the past year conclusively prove that dehydrated prunes of the highest quality can be as cheaply produced as by sun-drying, if not at less cost. A completely equipped, air-blast, tunnel dehydrator can be erected for $500 or less per green-ton capacity per 24-hours.***

***Owing to the annual danger of rain damage during the drying season it is recommended that every prune grower provide an inexpensive but efficient dehydrator, capable of handling most of his crop in an emergency. Then he should acquaint himself with the correct system of operation.***

***The California Prune and Apricot Growers and other concerns will offer dehydrated prunes to the trade as such. Time alone will tell what market this relatively new product will establish for itself. In the meantime every progressive prune grower should insure his crop with a dehydrator, and incidentally prepare for the time when dehydrated prunes may be the order of the day.—A. W. C.***

and its relation to prune drying. Small quantities of prunes were successfully dehydrated at the University Farm Evaporator in 1919 and 1920 and the dehydration of prunes in several commercial plants carefully studied. There is yet much to be learned about this subject, but the results so far are very encouraging and reveal notable advantages of dehydration over sun-drying. These were discussed in an article in the September, 1920, number of Orchard and Farm and need not be repeated here. However, it should be of interest to enumerate some of the experiences of the past season, thereby indicating proper methods of dehydrating prunes.

LYE-DIPPING

Lye-dipping and rinsing of prunes is as essential in dehydration as it is in sun-drying. Dipped prunes are clean and will dry much more rapidly and evenly than undipped prunes, often doubling the capacity of air-blast dehydraters. It has been noted that undipped prunes will dry almost as rapidly in natural draft driers as dipped prunes. The limiting factor in this case is not the ability of the prunes to give up their moisture, but the inability of natural draft driers to supply sufficient heated air for rapid drying. In air-blast dehydraters dipped prunes generally dry twice as rapidly as the undipped fruit.

KINDS OF TRAYS

Prune trays not exceeding 3x4 feet in

(Continued on Page 32)

# New Life for Old Shingles

That old shingle roof—neglected—is a danger signal! It means the cost of repairs or even a new roof soon, unless you put it in good condition.

## ORONITE SHINGLE OIL *Preserves Shingles*

Natural oils in the fibre of unprotected shingles soon evaporate from exposure to the hot sun. Cracking and warping of the shingles follow—and the roof begins to leak. Rain and wind penetrating the shingle fibre hasten disintegration and decay.

An application of Oronite Shingle Oil will help put your shingle roof in condition to stand up to the weather and give longer service to you. Oronite Shingle Oil is a high-quality preservative for all shingles—on roof or on side walls. It penetrates the shingle fibre with a moisture-resisting preservative. It retards evaporation of natural oils in the wood and counteracts the effect of age and exposure.

Oronite Shingle Oil will cover from 80 to 100 square feet of shingles per gallon, according to the age and condition of the shingles. It can be mixed with colors—ask our nearest agent for formulas. Use Oronite Shingle Oil on your roofs—*now*. It may save the cost of repairs or even an entire new roof next season.

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Gives a durable, smooth lubricating film under every pulling condition. Keeps the axle cool; no hot-boxes, no gumming. The MICA makes it better.

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Correct Lubrication for your Hand Separator, under the conditions of high speed and close fitting parts.

# ORONITE *means* QUALITY

*Spreads the Spray*

*Easy-to-mix spreader for all sprays.*

The next time you spray use our CASEIN spreader. No cooking required. Sift it dry into the tank. It makes the spray cover the tree evenly. It's economical. Ask your dealer, or write us for price and circular.

A—Without Spreader.

B—With Spreader.

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*Prepared* **CASEIN SPREADER**

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**Real Pump Economy**

**AMERICAN-MARSH PUMPS** (Closed runner).

Cost less than any other style of pump—Cost less to maintain. No end thrust trouble—Nothing to make trouble. Only 15 parts, including ring-oiling bearings and base plate.

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Sure death to Gophers and Squirrels.

Price, $7.20 per gross. If your dealer cannot supply you, write to us.

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Send for our Price List of Lumber, Sash, Doors and Builders' Supplies. We save you middleman's profit.

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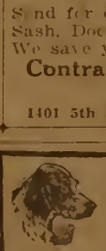

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# The Old Butterfat Question Again

CAN the butterfat content of milk be increased? Countless experiments, made by schools and practical breeders the world over, seem to point the answer, "Not in a practical way."

Does the average dairyman believe this? Some there are who claim that the butterfat content of any cow's milk can be changed. But the only sure indication is testing with a Babcock machine.

Many who have taken hundreds of tests assert that the butterfat-producing ability of any cow is born in her and is unchangeable except as noted below:

When cows have been fed inadequately for a considerable length of time, not only will the quantity of milk grow smaller, but also the percentage of fat content may swindle.

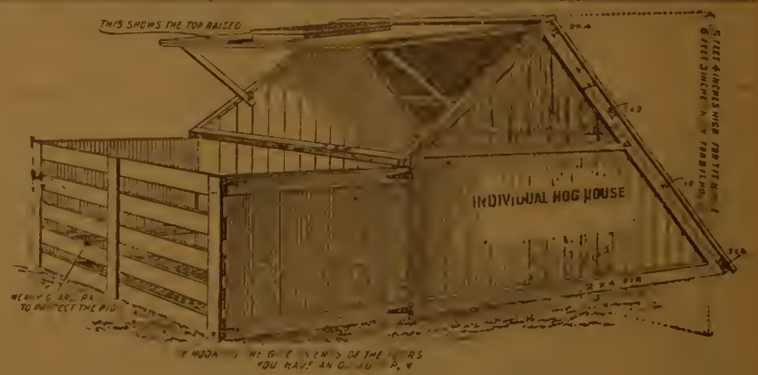
AN APPARENT INCREASE

The same animals when fed liberally, naturally will show an increase in both quantity and quality of milk. But an increase under these conditions means nothing more than returning the cow to normal production.

Dairymen have attempted to increase butterfat content by feeding a ration high in oil or fat. Usually, however, this results only in injuring the cow physically, with possibly a brief period of flush production usually followed by a period of depression.

After all, it is generally agreed that the only method that might put more fat into the milk is to feed the cow liberally of her regular balanced ration, given her such care as will enable her to yield the maximum quantity.

Records and tests covering a period of twenty years, show that there is a slight gain when a well-fed cow is turned out on pasture. Other than this natural effect, there is little evidence to support the contention that any cow can be forced into greater butterfat production.—George W. Fry.




*Cleverly-Constructed Hog House*

*This convenient and serviceable individual house possesses a number of unique features. The top may be raised to provide shade and ventilation, while a gate is fitted to the doors, which, when opened, form a pen. A heavy guard-rail protects the young pigs and good bracing gives rigidity.*

## A Dairyman's Advice

A DAIRYMAN with years of experience and a record of success places great emphasis upon the "little things" in the management of cows. For example, he shows that a nervous cow should be handled with the greatest of care, at no time being frightened by harsh treatment. In fact, no dairy animal should be allowed to suffer from such annoyances as worrying by dogs or abuse by careless milkers.

This farmer attaches great importance also to comfort and cleanliness in the barn. The use of modern equipment and scrupulous care to maintain health and sanitation aid in increasing profits, he points out.

Regular feeding at stipulated hours likewise is most desirable, he asserts. The cow accustomed to being fed and milked at certain times is disturbed by any deviation in the schedule.

All these factors, of course, are secondary to breeding and ration, but are extremely important in making big records and satisfactory profits.

## Milk Production Cost

INTERESTING conclusions were reached as the result of an investigation of the cost of producing milk and its relation to the income on dairy farms. Eleven farms with high milk costs were selected to compare with fifteen farms having low cost of production, an attempt being made to find uniform terms of average size and conditions.

For the high cost group, the total receipts were about $1000 less and expenses $400 higher, making a labor income difference of $1418 in favor of the farmer who produced milk at a low cost.

The one outstanding factor in determining costs appeared to be PRODUCTION OF MILK PER COW. The farmers whose production costs were lower had better cows, which gave on an average 1200 pounds of milk more than those of the other group, making the average sales per cow $34 greater.

In some cases the cows of the unprofitable farms consumed a greater amount of feed than those that produced more milk. This experiment added to the already conclusive evidence that testing pays and that the only profitable cow is the high producer.

## A Skim Milk Problem Solved

"CO-OPERATION, cheese and a truck" showed one farmer how to secure a profit from skim milk. This dairyman, who had been an expert cheese-maker, turned naturally to this means of disposing of skim milk. Realizing, however, that his project required more milk than his cows supplied, he called a conference of his neighbors, who agreed to furnish as much as necessary.

His next thought was of the transportation problem. Here again co-operation saved the day. A way was found to convert the rough mountain trail, which was the only means of reaching the town 50 miles distant, into an easily accessible road.

Negotiating this pass with his truck, he has been making weekly trips, with a daily round trip, for nearly a year since the commencement [illegible] cheese but also other foods to [illegible] his own and his neighbors' farms, bringing provisions and equipment on the return trip.

His project has developed into a rural express business which has been profitable to him, to those associated with him and to other farmers [illegible] the roads, who frequently have small shipments of perishable foods, and vegetables that formerly would have gone to waste, but which now they are able to market at a profit.

Thus one motor truck and an enterprising farmer have brought prosperity to an isolated district 50 miles from a market.—C. C. Tonnck.

# A Bit of Goat Psychology

*WITHOUT endorsing this theory or urging it upon our readers, ORCHARD and FARM finds it of unusual interest, and publishes it therefore, in the belief that it affords food for thought. Nowadays it isn't safe to scout any idea, no matter how apparently radical! The world is moving rapidly, and in directions that may not seem strange in later years.—Ed.*

IT may seem a far cry to the average thinker from metaphysics to a brimming pail of milk, and still farther to the check which pays for the milk.

But to the thinker who believes that not a blade of grass springs up, not the flutter of a fly's wing nor the launching of a planetary system upon its way occurs, unless thought has preceded the action, the relation is not so remote as at first may appear.

Thought comes before action. Action is only thought made apparent. Thought moves matter just as surely as the rain falls. One thinks; the hand responds, because the thought causes the muscles that move the hand to contract.

The explanation of many mysterious phenomena lies in this fundamental truth that thought controls matter.

### AS APPLIED TO ANIMALS

The universe of thought surrounds all living things, and in this sea are launched thoughts of hate and love, fear and security, cruelty and kindness. These various kinds of thoughts come to all of us, more or less distinctly as we are busy with accomplishing our own aims. To the so-called dumb animals these thoughts come like impelling forces and guide and control their actions and functions with a remarkable degree of responsiveness.

Goats learn to catch the mood of their keeper quickly and the corresponding actions appear quickly. If the owner is kind and considerate, a sense of security pervades the whole pen. However, if the keeper shall be angry, and rough, quick spoken or cruel, the goats catch this also and act accordingly.

The giving of milk is a habit, which can be cultivated through a lifetime or through generations, to be increased, or prolonged beyond the ordinary quantity or period of the average goat by persistence and proper thought.

### EVIDENCE IN RESULTS

If the owner believes this, and persistently thinks that the kids to be born are to be great milkers, they are more likely to be long and heavy milkers, and if this attitude is maintained during generations, the results cannot but be noticed in the kids. Hold this thought constantly, not for an instant giving room to any other suggestion or fear and the result cannot but be favorable.

My reasons, you ask? I have tried it, and my herd of goats amply bear out these theories, first practiced upon a little kid that was given me seven years ago, the nucleus of my present herd. Then too I have observed in others thoughts of fear, of doubt, wavering between hope and fear, and have noticed others whose thoughts are firm and have found beneficial results following upon the line of thought outlined, and untoward results follow a contrary line of thinking.

When goats will respond to passing emotions of the keeper, it stands to reason that a firm, upbuilding, consistent attitude of thought upon the part of the owner must have its proportionately beneficial results.

## Can Sex Be Predetermined?

ABOUT a year ago I wrote an article advocating certain feeding to produce doe kids, and have followed it out, obtaining desirable results. It has been my fortune also to have under observation some goats which, owing to necessity, were fed in just the opposite manner during the period of gestation and kidding, and the result was a predominating percentage of buck kids, which goes farther to prove my contention, that the majority of doe kids can be obtained by following the course of feeding and methods advocated in my previous article in ORCHARD and FARM.

## Caked Udder

IN my article in a recent issue I mentioned caked-udder. This condition is produced by over-congestion of the milk gland.

In order to function, the gland necessarily calls to it an ample supply of blood, but frequently in heavy milkers, the call appears to be too strong, and the pressure of the tiny blood vessels closes the little ducts which take the milk to the teats; caked udder results.

This is indicated by hard nodules or areas in the udder, a tenseness of the entire udder or one side of it, discomfort on the part of the animal, fever and great distention.

The best remedies are two, i.e., manipulation and hot applications.

The manipulation must be gentle but persistent; take away as much milk as possible at every milking, which should be every two or three hours, if the case requires it. It is not the force used which produces results, but the persistency and gentleness.

Also hot applications placed and held on the udder relax the tissues, allowing the freer flow of all liquids.

The best hot application is hot boiled potatoes placed in a sack and held upon the udder. Care should be exercised not to make the application hot enough to burn the animal.—J. F. Farmer.

A Missouri farmer writes:

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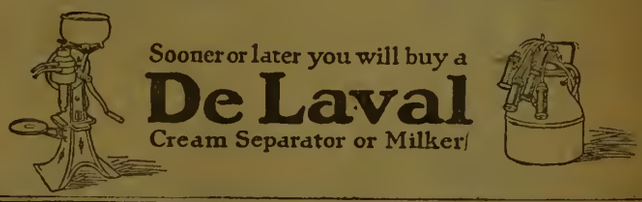

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**SHEEP TROUGH**

This is the "demountable" sheep trough, invented by Fred Ellenwood of Red Bluff, Cal. The picture tells the story and any handy man can make it. The upright pieces which enter the top rail, lock the parts together. Note that these sticks are rounded, as shown in lower part of right hand compartment. The wooden bottom just beneath the trough bottom. (Courtesy National Wool Growers' Association.)

# Rosy Cheeks from Raisins

***Certain foods, madam, bring the good looks of good health, due to the food-iron they contain. This luscious raisin salad is one of them***

**Raisin Salad**

1 cup Sun-Maid Seeded Raisins
¼ cup lemon juice
2 cups chopped apples or pears
2 cups coarsely shredded lettuce
1 cup cream mayonnaise

Wash and dry the raisins, add to the apples and lemon juice. Line bowl or plates with shredded lettuce, pile raisins and apples in center, cover with mayonnaise; serve with Neufchatel cheese balls and garnish top with small pieces of red, tart jelly. Shredded lettuce is a matter of taste. It will go farther and decorates better if shredded.

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Don't fail to send the coupon for 97 other "beauty" recipes. Raisins lend charm and healthfulness to many other foods, also increasing their nutrition. The book is worth while and is free, so send for your copy now.

There's more than merely flavor in the luscious raisin foods that we suggest.

There's food-iron—an essential to good health. Without your necessary supply of iron in the blood you are paler than you should be to be pretty.

The bloom of youth which shows on young girls' and children's cheeks is evidence of that proper supply of iron. It is the *true beauty*—the good looks of *good health*—and there's no reason why all women shouldn't have it.

Serve raisins frequently in salads and desserts—in puddings, bread, pie, cakes, rolls, etc. Stewed raisins is a luscious breakfast dish and one of the most healthful known. Great sanitariums, like that at Battle Creek, Michigan, prescribe them for anemic patients.

The raisin is also slightly laxative, which helps to keep complexions clear.

* * * *

Use Sun-Maid Raisins—California's finest, made from thin-skinned, tender, juicy table grapes. *Clean, sweet, wholesome American* raisins—the kind you *know are good.*

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# SUN-MAID RAISINS


## The Tractor Is the Husky of the Farm

By W. H. Gardner

THERE'S no doubt about it! The automobile was the fore-father of the tractor. But, like others that we've met, the sturdy tractor doesn't like too many references to his effete ancestry.

It is no longer the fashion for a salesman to say, "If you can drive an automobile you'll have no trouble with a tractor!" They're as different as a tea-wagon and a freight-car. One problem of the tractor manufacturers is to get people to recognize this difference and to respect it.

What is a tractor like, anyway? It has been compared to a locomotive, eternally puffing up a stiff grade, with a long string of loaded gondolas behind. But—at the end of every trip the engine goes into the round-house for a thorough looking over.

THE NORTHERN HUSKY

Up in the frozen north the Eskimo depends on his "husky" dog for motive power. As long as the crisp and well-packed snow-trails are open, the husky is kept at work. He is fed regularly, his sore feet are treated, his physical condition is jealously guarded. But when the thousands of water courses are opened by the spring thaws, the faithful servant is quite forgotten, and left, a fugitive, to fend and forage for himself until once more comes the long season of his usefulness.

"To treat a man like a dog," is an expression that describes vicious abuse. It's as apt in the north as anywhere—in the summer time! But not in the winter.

THE TRACTOR COMPARISON

The tractor, if you please, is that same husky, and the automobile the pampered puppy of civilization, the pet of milady of fashion!

For the value of the lap-dog depends upon his beauty—of the automobile upon its finish, its upholstery, the condition of its paint and top and "gingerbread." The worth of the husky or the tractor, however, is measured by its strength and endurance.

All the year 'round, the pet is coddled and fondled—asked only to come and go at the bidding of his mistress. But the husky may have a slit ear and

## A Mule Skinner's Tractor Philosophy

*By Walter H. Gardner*

Nor whip, nor goad, nor ridicule
Will raise a hair on stubborn mule;
Yet—scorch him with a vicious oath—
The beast will lose a season's growth!

But tractors are of tempered steel,
And neither listen, sweat nor feel.
To lash them with profanity,
I hold is an inanity!

An empty radiator's fizz
Provokes, perhaps, a mild "Gee whiz!"
For "some one" let the thing go dry.
(That one, I know too well, was I !)

And when the tortured pistons wheeze,
I should be called a hunk o' cheese!
For tractors, oil-less, *always* halt—
The motor should not bear the fault!

The mule, it always seemed to me,
Appreciates profanity;
But when the tractor's halt and lame,
The driver usually is to blame.

And if a mule decides to balk,
He quite deserves expressive talk;
But when the ungreased pinions burst,
'Tis I who should be roundly cursed!

[illegible] yet be worth his weight [illegible]—in the working season.

A sick house-dog is bundled into a [illegible] and hurried to the dog-doctor—a veterinary. There is no place for the wounded husky to be taken; he must make the fight for life out there in the wilderness. This marks the one essential difference between the automobile and the tractor.

AUTO VS. TRACTOR

When the car develops a loose bearing, when the ignition system becomes temperamental; when the transmission begins to grumble over some inward pain, its owner points it toward some favored garage and limps into the hands of skilled workmen in a well-appointed shop at a speed of twenty or thirty miles an hour.

The tractor, on the other hand, would perish by the roadside in trying to make the same trip to a haven. It can only drag itself into the nearest barn—sometimes not even that! It is torn down on a dirty floor and put together without the benefit of first-class machine equipment.

To overlook this inherent weakness of the tractor is to court disaster. To guard against this same short-coming is to insure success!

The tractor designer of today doesn't try to make the machine free from the necessity of repair. He admits that there are certain parts that are going to wear out under the strenuous work that every tractor gets. He tries to limit this wear to a few well-defined points. The drive pinions often go first. Clutch plates MUST be replaced. Bearings must be taken up every so often.

When the first snow flies in the North, the Eskimo rounds up his dogs. They are gaunt and weak from a slim diet on the refuse of the village. He feeds them, grooms them, nurses them to the top pitch of health—before they are once harnessed.

SLACK SEASON CARE

That's what the tractor owner must learn to do. During the slack season, when time permits, the machine may be loaded on a truck and hauled to a real shop. Or, at least, it should be carefully gone over right on the farm, perhaps by an expert. Experts are easy to get at such times, but mighty scarce when, at the height of the rush of work, everyone is calling for them.

Just remember that the husky is fattened to full health before being harnessed. And remember, too, that the dog will work through a long season if he isn't overloaded!

# Improving the Field by Subsoiling

A WATER company insures a permanent supply of water by the construction of huge reservoirs to store the rains until needed for use. But a reservoir fifty feet deep would be of no practical benefit if only the top foot of water could be drawn off for use. This is what happens with soil on a great many farms, for only the fertility of the top six or seven inches is utilized, and, after years of cropping, the surface soil becomes thin and worn out, even though a deep reservoir of natural fertility and moisture lies below.

Plant life can draw its sustenance from only that soil which comes into contact with the root systems, and when plowing is done year after year to a depth of five, six or seven inches, an artificial hardpan is created at the bottom of the furrow. If plowing is done at the same depth in succeeding seasons, this hard layer is made more firm, until, in time, it becomes impervious to moisture, and the growing plant must live on the food contained in the top soil. Deep-tillage is of value in breaking up this plow-sole, as well as natural hardpan.

Deep plowing has been impossible in most cases where animals furnish the source of power, for enough horses to supply the power for subsoiling would form an unwieldy unit, and could not be easily managed in small fields or where sharp corners are met with. Every two or three years most farmers have found it desirable to plow an inch or two deeper. This could be done by adding an extra team of horses, but deep plowing, as it is accomplished today by machinery, was unknown until the advent of the tractor.

Through the use of the heavier and more powerful tractors it is possible now to break the earth to a depth of twenty-four inches under normal conditions, and in some instances even to a depth of sixty inches. Subsoiling is practiced to a larger extent in California than in any other State.

In the sugar cane fields of Hawaii, however, deep plowing is regularly practiced, for the success of cane growing depends upon it. And in doing this work the planters use big steam engines or the largest styles of gasoline tractors.

POTENTIAL RESOURCES

Throughout the country there are [illegible] where the surface condition [illegible] for the growing of [illegible] of orchards, but where the top soil is so thin that it will not support continued crops.

A thin layer of hardpan often underlies this top soil, which, if pierced and broken up, will permit the roots of fruit trees and vines and often field crops to penetrate into the virgin and fertile soil below.

The presence of this thin layer of hardpan prevents the water in the ground from reaching the surface by capillary attraction, and what otherwise would be a good agricultural or horticultural property remains unproductive. But through the use of subsoil machines, lands of this type are being rapidly reclaimed.

ORCHARD EXPERIENCE

As an example, the experience of the orchardists in the Lindsay district of Tulare County, California, is interesting. Here a stratum of hardpan underlies the land devoted to the culture of oranges and other fruit, and in setting out the trees many owners found it necessary to use dynamite to shatter the hardpan in the immediate vicinity of the tree roots, but it was obviously impossible to break it up by this means throughout all the area.

Some of the orchards, although getting a good start, did not hold their growth as they should, and it was decided to experiment with a subsoiling outfit built sufficiently strong to dig down at least three feet and to reach through the hardpan. The first attempts were not successful, but finally a subsoil plow was built strong enough to do the work.

This machine was pulled by two track-laying tractors, one of seventy-five horsepower and the other of forty-five horsepower, and this outfit, with a crew of six men, plowed up the orchard soil to a depth of not less than three feet and often as deep as five feet. The submerged blade was five feet long, two inches in thickness and made of the finest Norway steel.

At the bottom of the blade was placed a shoe, four inches wide and two feet long, upon which was attached the point, which cut through the hardpan. Owing to the wearing strain, this point had to be renewed every four or five hours, as it would be worn thin by the friction.

COVERED MUCH GROUND

The Lindsay outfit plowed an aver-

(Continued on Page 23)

### *Does It Pay?*

***UNDER what conditions is subsoiling profitable? Remarkable results cited in this article may furnish an answer to the questions asked by many farmers and fruit growers. The development of deep-tillage machinery is one of the greatest triumphs of power-farming. Here is an account of actual practice—and results.—The Editor.***


# MOLASSES

**" . . . I feed Molasses when feeding for the fairs,"**

**says Mr. J. E. Thorp, Lockeford, Cal.**

Mr. J. E. Thorp, owner of Mossdale Herd, is an experienced breeder, and his judgment on feeding is valuable. He says in a recent letter to us: "I feed Camo Molasses every year when feeding stock for the fairs, and like it very much."

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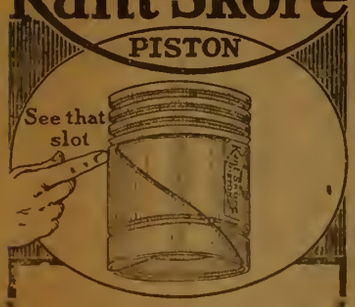


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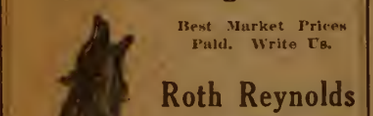


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# Horse vs. Tractor

***THE controversy might continue indefinitely. Each side has arguments limited only by variations in local conditions. For in some cases tractors reign supreme; in other cases, horses. And still more frequently, both are used together to the greatest advantage. With these communications, condensed for lack of space, ORCHARD and FARM, therefore, ends the friendly controversy which has brought out so many conflicting but interesting experiences, facts and figures.—Editor.***

## Tractor Dissatisfaction

FREQUENTLY tractor dissatisfaction can be traced to such circumstances as the following: A big citrus orchard with a fleet of machines; cheap labor in the drivers' seats; a shutdown for inspection or adjustment allowed only grudgingly; tractor laid up for a week at the end of a six months' run; sarcastic remarks.

Yet if the manager had driven his automobile in the same manner and under similar conditions, he would have traded it in on a new one as a matter of business, and laughed up his sleeve at what he had handed the other fellow. Remember this: A six months' run by a tractor motor would drive a car 30,000 miles.

Another case: A rancher bought an experimental rig of a brand new design, put out by a freshly organized, super-modern concern. Just after he discovered his machine to be entirely unsatisfactory, the company failed. Since then he has condemned all tractors and is trying to trade his "orphan" for a horse.

Similar cases account for many of the "tractor grouches." As a matter of fact, there are few farms that don't need some kind of a tractor and few men who don't prefer handling a monkey wrench to a set of harness.—W. G.

## Back to Horses?

WE are going back to draft horses for the sake of economy. It does not cost one-third as much to feed a horse now as it did a year ago; whereas the cost of mechanical motive power is above what it was twelve months ago. Now that both the farmer and the city business man are being forced to cut expenses, it is no wonder that the horse is "coming back." Any policy, no matter how old the idea back of it, will now come up for reconsideration, if it offers a means of saving a few dollars. People simply do not have the money to invest in equipment that they had last spring and summer, when prices were two and three times as high as they are now.—Ellis McFarland.

## On a Big Ranch

WE have standardized on tractor equipment for hillside work in this almond district. The tractors are cultivating successfully land that formerly horses could not negotiate except in unwieldy units.

We do not maintain horse outfits but frequently operate as many as five tractor units.—George Laing, Field Superintendent, Associated Almond Growers, Paso Robles.

## Prefers Horses

I have nothing against the tractor, but I prefer horses. I think the time soon is coming when many tractors will be junked, and good times will be in store for the man who has stood behind the horse, for he is the man who will have something to sell.

The farmer who "knocks" the horse is knocking his own business. He receives $10 a ton for hay, or less, 35 cents for corn and 30 cents for oats, and buys gas for 26 cents a gallon, which he can only use during a very few days in a year.

I think that the tractor enthusiast will change his tune, but if he is a manufacturer of horseless machines let him "boost" his business. I shall continue breeding horses, and insure colts to stand and suck, and if one will not stand and suck I will treat my fellow-breeders right, and let them come back again with their mares.

There are always reasons for things, whether we know them or not. A tractor man does not tell his customer to come back for repairs free of charge.—Frank Sharp.

## Local Experience

YOUR readers may be interested in the tractor experience of a "little lander." I have five acres, most of which is in fruit. Formerly I let my cultivation work on contract to a man owning one horse. I found this so unsatisfactory and costly that I purchased a horse myself.

I had some hard luck with it, however, with resulting veterinary bills and loss of time, and concluded that it does not pay a man with a very small acreage to maintain animal power himself.

Finally I got rid of the beast and invested in a small garden tractor which cost me little more than the horse. I have used it with great satisfaction for two years, doing all my own work at lower cost than ever before.

The repair expense has been small, although some replacements have been necessary, but I have found the distributor willing to give good service.

I think the so-called garden tractor a boon to the man with small acreage.—George Kronfelt.

## Two Sides to Question

SOME persons do not like horses. They remember that old Dobbin has a collar sore, but forget that he is 15 or 20 years old. They see a balky mule, and forget how an engine with a warped exhaust-valve or a weak intake valve-spring acts. They ride behind a team and curse the heat, although they probably never fired a steam tractor in the summertime!

They starve a horse and then wonder why he is weak, although they know that the bearings in an engine will burn out if they are not oiled! They claim that a tractor does not eat while it is standing still, and forget that a horse does not eat while he is working.

The more one works a horse the less he costs, and the more one works a tractor the more it costs, when the cost of any job is figured. These same fellows growl at paying the veterinarian for floating their old horse's teeth, but take it for granted that the boiler needs new tubes or the cylinders need reboring.—H. A. A.

## A Subscriber's View

A SUBSCRIBER sends this interesting comment:

"The interests of the animal husbandman and the tractor man are for the most part entirely compatible, lying as they do in the direction of bringing about a more efficient and therefore a more profitable agriculture.

"The tractor has ushered in a new system of farming. Even aside from its unlimited adaptability to belt work, it brings advantages that nothing else can provide. It means better soil preparation, extra acreage, soil conservation through deeper plowing, bigger yields per man and per acre, insurance against adverse weather conditions and the most important final advantage of greater profits to the farmer himself.

"The farm tractor is not in competition with the horse. There is no substitute for the farm tractor—it has created industry where industry did not heretofore exist"

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## RHEUMATISM

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I want every sufferer from any form of muscular and sub-acute (swelling at the joints) rheumatism, to try the great value of my improved "Home Treatment" for its remarkable healing power. Don't send a cent; simply mail your name and address, and I will send it free to try. After you have used it, and it has proven itself to be that long-looked-for means of getting rid of such forms of rheumatism, you may send the price of it, One Dollar, but understand I do not want your money unless you are perfectly satisfied to send it. Isn't that fair? Why suffer any longer, when relief is thus offered you free? Don't delay. Write today.

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## Subsoiling

(Continued from Page 21)

of ten to twelve acres a day, and the hardpan was broken up a distance of three or four feet on either side of the furrow. Where the hardpan was near the surface the broken pieces were pulled to the top, and one owner hauled away an average of eleven truckloads of hardpan from each tree row.

As evidence of the value of the subsoil operations, one owner found that when the next irrigation was practiced after the subsoiler had finished, it required four times as much water to irrigate the rows as previously. But within a few days trees that had made practically no growth for two years shot out more new growth than they had made for several years.

### AIDS COVER CROP

Another owner who never had been able to grow a green cover crop in his orchard planted one after the subsoil-operation and within a short time a luxuriant growth sprang up to a height of over three feet, while the seed sown on land not subsoiled could not sustain the growth that started and died after rising but a few inches.

On a big 4000-acre ranch in Merced County, California, a contract outfit now is engaged in preparing the ground for fruit trees, and a battery of eight heavy tractors is used to furnish power for the deep subsoilers which are breaking up the underlying hardpan. A single-standard subsoiler, pulled by three seventy-five horsepower tractors, breaks up the earth to a depth of almost three feet, and this outfit is followed by two more tractors pulling a three-standard subsoiler.

The first thousand-acre plot on this ranch was put in shape by subsoiling and leveling at a cost of $40 per acre, but this value was returned to the owners many fold through increased productivity.

### ON ADOBE LANDS

Subsoiling has solved the problems of many farmers who have adobe lands. Some of the lands in the Sacramento Valley in California are adobe and most of these lands are used for the growing of rice. One company, having 2000 acres which had grown rice for three successive seasons, desired to utilize the land for growing wheat. It was found, however, that the porosity of the soil was destroyed and any considerable amount of water added to the surface drowned out the grain, since it would not soak through the plow-sole brought about by many years' plowing to a uniform depth.

Subsoiling was resorted to, and the plow sole was broken up by the use of a subsoil chisel, operated while the ground was dry. In the operation of subsoiling, the sharp chisel is set to cut the earth at any desired depth, from [illegible] inches to three feet or more, and pulled by a big tractor.

This permits the grain or other crop to send the roots into the lower soil for moisture and food, and surface water percolating through can escape into the lower ground and not be held by the hardpan to drown out the growing plants.

### TEACHES A LESSON

The examples given may seem to represent unusual conditions not encountered by ordinary farmers—and perhaps this is true. On the other hand, frequently big fields or desirable natural lands that are allowed to remain unproductive because of some natural obstacle to their use, and a [illegible] of the experience of others in similar conditions may enable owners of such lands to emulate their [illegible].

[illegible] and moderate subsoiling [illegible] be practiced successfully on almost every power farm, for there is no doubt that the deeper the soil is prepared for plant-life the [illegible] will be the returns. Subsoiling [illegible] will release additional [illegible] the soil facilitate the passage [illegible] both upward and downward; [illegible] the soil warmed and aerated, [illegible] dividends on the [illegible] expense.—Arthur L.


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## What Is the Advantage of the June Bud?

THE June bud never has become very popular among California nurserymen; consequently the planter has seen little of it. Yet in some of the southern States June budding is a very common method of propagating certain kinds of trees, particularly the peach.

Last season the writer had an opportunity to observe the work of budding peach seedlings in June and later planted some of the trees in an orchard. The splendid growth of these trees both in the nursery and orchards where they have since been observed, would lead to the belief that certain advantages in June budding cannot be claimed for trees propagated in the ordinary manner.

June buds, as the name indicates, are seedling trees that are budded late in June or early in July instead of late in August or still later in the fall. The seedling trees which come from seeds sown in the nursery row in the early spring, if conditions are favorable, may be large enough for budding in June.

The process is the same as in all other budding. New wood of the current season, upon which buds are well matured, is selected for bud sticks. The buds are inserted in the young seedlings well above the ground, six inches or more, and after union takes place, the growth of the seedling is checked by breaking but not entirely removing the seedling top.

The recently inserted bud then will start and after it has become well started, the entire seedling top is removed, thus leaving only the variety introduced, which will make a satisfactory growth before the end of the growing season. June buds grown by local nurserymen last summer developed splendid branching tops and a root system that scarcely could be equaled.

Some of the advantages of the June bud are (1) seedlings grown from seed planted in the spring are changed to the desired variety and are ready for orchard planting the following winter or spring; (2) any desired height of head may be developed from June bud trees. In the case of dormant buds as usually they are grown in the nursery, there may be few good buds on the trunk to start growth when the trees are planted in the orchard. (It happens frequently, that either too high or too low heads will be the result of this bud scarcity); (3) chances for June buds living are better than those of larger trees from which most of the lower branches have been stripped in the nursery and where the injury to the root system in digging, is greater; (4) the cost to the planter of June buds should be much less than that of dormant trees, and under suitable conditions they should make practically if not fully as good a growth the first season, as the ordinary one year old tree.—George P. Weldon.

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HANSON'S POULTRY FARM, Corvallis, Ore.


# Summertime Poultry Hints

By F. E. La Shelle, Jr.

WRITTEN FOR ORCHARD AND FARM, COURTESY SPERRY FLOUR COMPANY.

TWO important factors affecting the quality of eggs are, first, the condition of the hen's reproductive organs, and second, the external factors, which are under the control of the poultryman. Every year thousands of dollars are lost to the producer of table eggs through failure to adopt the best methods. Why not take advantage of every condition possible to increase the returns on the finished product?

**Care of Summer Eggs**

If the poultryman will keep only hens that are strong, healthy breeders or layers, he will minimize the possibility of producing inferior eggs. But careful selection should be coupled with judicious management.

### SWAT THE ROOSTER

All males should be removed from the flock after the breeding season is over. This insures the production of infertile eggs, which will not deteriorate as rapidly as will fertile eggs.

Feed plenty of shell-producing material so that it will be possible for the hen to produce eggs with strong shells and thus eliminate possibility of breakage and rapid evaporation.

Have plenty of nests. As a general rule, one nest to six hens will be sufficient; if trap-nests are used, about one nest to three hens.

Arrange the house and equipment so that nests cannot be "stolen." Some flocks are more given to stealing nests than others. If "stolen" nests are discovered, candle the eggs before packing.

### REGULAR GATHERING

Gather the eggs regularly, twice a day at least. This will give assurance that the egg has not been under a hen or several hens, within eight to ten hours. Remember that every minute an egg is under a hen it is undergoing the process of incubation. Perhaps you have shipped fresh eggs and have had a report from your dealer that some of the eggs were in the "baker's" class. Frequently, the reason for this classification is that the egg has been under incubation for ten or twelve hours.

After the eggs have been gathered, keep them in a cool, clean place in order to check evaporation, and avoid storing them where they can absorb odors.

Ship the eggs to market as often as possible. Eggs are perishable and should be kept moving. Regular and prompt shipment means uniformly higher prices.

Avoid washing eggs during the summer months as much as possible, as washing will remove the bloom from the shell and open the pores, allowing the contents to evaporate more rapidly.

Clean the eggs when necessary with a piece of fine sandpaper, tacked over a padded block of wood.

## House Ventilation

VENTILATION is just as important in summer as in winter. An improperly ventilated house will cause either a lowering of the production or increase in mortality, or both.

Be sure there are windows or ventilators at the rear of the house so that a current of air will move through the house on extremely hot days. Care must be taken, however, if the nights are cold, that the ventilators and windows are arranged properly at sundown to prevent cold drafts.

If the dropping-board is against the rear wall, conditions are many times greatly improved by the use of hinged windows placed at intervals along the rear wall beneath the beard. What would otherwise be a pocket of still warm air will be changed to a current refreshing to the suffering fowls.

## Care of Yards

IF the yards have very little shade, a wooden shelter will help to make conditions more pleasant for the fowls.

It would be to the poultryman's advantage if he would plan ahead for the warm weather and put out quickly growing shade plants, such as the sunflower or castor bean.

Still a better method would be to set trees that would have a double value. A few dollars thus wisely invested may be the means of saving many dollars in loss of hens and eggs through lack of protection.

## The Water Supply

THOSE poultry plants not equipped with running water (and there are quite a number of them) should have special provisions for supplying the birds with fresh, cool water.

Fowls will drink a surprisingly large quantity of water on a hot day, and birds that are without water for a few hours during a summer day will be hard to bring back into profitable production.

All water troughs should be properly sheltered from the heat of the sun in order to keep the water cool and fresh.

## Capons Make Good Foster Mothers

HAWKS annually take a tremendous toll of growing chicks. But almost any hawk has a wholesome respect for a ten-pound capon. And the capon usually proves superior to a hen as a "brooder." He guards his charges jealously, and stays by them until they are grown.

The capon possesses remarkable intelligence, disciplines the chick that attempts to wander off or start a fight, and generally proclaims himself ruler of the roost. He is a "scrapper," too, when necessary, entering the fray whole-heartedly, with beak, wings and feet.

After his duty as foster-mother is done, the capon makes a delicious roast, finer, many persons believe, than a turkey. The capon attains greater size than the rooster, his feathers are soft and smooth and he does not crow. Being of even disposition, he takes on flesh readily.

The attractive prices commanded by capons on the market lead the investigator to wonder why more poultrymen do not raise the birds. They may be regarded as representing truly a "dual-purpose" type, useful in raising chicks and highly valued by epicures as a table delicacy.—Albert J. Mason

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Watch the early pullets! Plenty of range, dry grain, fed twice daily, water, green feed, whole milk and meat in sufficient quantities, will keep them from laying before September 1, when they should be in best condition. By many poultrymen it is considered a serious mistake to allow young pullets to start laying in August. The change in ration should be made gradually.

---

Experienced raisers of geese [illegible] the goose is one of the most profitable and easy fowls to keep, and express belief in a bright future of expansion for the goose industry. The Toulouse, African and Embden are the three most popular breeds, the Embden being the all-white type, considered best for market purposes.

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Poultrymen everywhere are [illegible] ing Congress with a demand for adequate tariff protection against the influx of cheap Chinese eggs. Have you done your share?

# Help for the Gardener

By Charles L. Schufeldt

## Bean Pointers

A YEARLY program for string beans of highest quality is one the hobbies of a Santa Barbara doctor. While we cannot all be favored with Santa Barbara climate, many home garden soils in California will produce beans throughout a long season.

Chas. L. Schufeldt

Stringless Green Pod beans should be planted this month and up until nine to ten weeks prior to the first hard, killing frost. At the same time plant white seeded Kentucky Wonder pole beans. Early in the following spring, as soon as the soil is warm, make the first planting of the same varieties, and continue to plant throughout the spring and summer. By spacing the plantings about six weeks apart, it is possible in favorable locations to have continuous picking of beans from April until Christmas.

### VARIETIES OF BEANS

The Stringless Green Pod, grown properly and correctly canned, is superior. They should be picked when the small beans in the pods are one-fourth to three-eighths inch long and one-sixteenth inch thick. If they are picked when too young or too old the flavor will be impaired. They should be canned the same day picked.

Beans, like other vegetables, must be grown rapidly in fertile soil, with correct moisture conditions. This means without too much water. Also, there must be good functioning of the leaves, which should be free from rust, blight or spider mites.

### OTHER GOOD VARIETIES

Refugee, Valentine and brown seeded Kentucky Wonder are good. Canadian Wonder is quite hardy and fairly rust resistant, and is a heavy producer for a bush bean. It makes a good dry bean, as it is more prolific than Red Kidney and but slightly inferior for cooking. It is not stringless and is inferior in flavor to Stringless Green Pod or Kentucky Wonder. Yellow podded beans are not as satisfactory in flavor and generally are not as prolific as the green-podded varieties.

### GROWING POLE BEANS

Many gardeners do not attempt to grow pole beans because of the expense and trouble of getting poles. An excellent way to provide bean poles is to grow the tall Russian sunflower and then save the stalks for bean poles the following year. The sunflower stalks are strong enough to support the heavy bean vines if they are leaned together, crossed and tied, with another stalk as an additional brace tied in crotches horizontally. It is well to brush over the sunflower stalks with crude oil or old engine oil to kill spore of rust or other fungi which may have lived over from the previous season.

### POLES UNNECESSARY

White seeded Kentucky Wonder grow and bear quite as well when left to trail on the ground, although not so convenient to pick or cultivate and [illegible]. It is a good plan to plant two or three seeds of corn in hills about three feet apart. Then when the [illegible] is six inches high, the beans may be planted by the side of each hill of [illegible]. Good fertile soil and irrigation [illegible] to success with this plan.

[illegible] Valued—"I value Orchard and [illegible] to be without it."—[illegible] Cal.

## Growing Winter Squash

BANANA squash affords better pie material than any other variety grown in California. It is a new squash not as thoroughly fixed in type and as uniform in size, shape and quality as it will be in a few years, after reliable growers have improved it by selection and other methods. However, it is by many considered our best winter squash for local markets and for home use.

### THE HUBBARD SQUASH

Hubbard has been the standard winter squash in all parts of the country for a generation. Many people get inferior seed and are disappointed. Often Hubbard is mixed with Pike's Peak, Sibley, Banana, Pumpkin or some of the marrows. It is not as prolific as the Banana. This latter variety does not sunburn, unless planted quite late in July, while the Hubbard sunburns and soon decays.

### WHEN TO PLANT SQUASH

The Banana squash may be planted from the first to the middle of July in most interior valleys and as late as September in sections where killing frosts come seldom and late. When planted late, they can be held over until the new crop is mature the following year. Good prices may be secured for the winter pie squash in the early spring.

### MAINTAINING A STANDARD

Save your own seed if you wish to keep up the standard of quality of any garden product. Of course, two varieties cannot be grown in the same field and neither can pumpkins be grown near squash without danger of crossing. Good gardeners plan to select seed from the best plants, which are far enough removed from like plants to be secure against cross pollination by insects.

### STORING OF SQUASH

Hold winter squash over from one season to the next by placing the squash upon shelves or racks in a shaded place, first wrapping them with old newspapers. Do not pile the squash one on top of the other. Some farmers near Owensmouth, where large quantities are raised, plan to make thatched pergolas with a series of shelves of one by three-inch lumber, nailed about a foot apart and supported every six feet. On these shelves or racks they plan to keep about 100 tons of Banana squash through the winter. The pergolas will be thatched with corn stalks.

### SQUASH WITH CORN

Grow squash with sweet corn or field corn if there is opportunity to irrigate. Plant the corn three feet apart each way. In every other hill of every other row, plant squash instead of corn, thus making one fourth as many hills of squash as of corn. Cultivate both ways. Try to have the soil so well filled with water that cultivation only after the last irrigation will be necessary. When corn is two feet high and the squash begins to show runners, continue to cultivate as long as squash vines will permit. The roots go deep, and as far as the vines will run.

## To Exterminate Fleas

A SIMPLE and effective method of exterminating fleas in the house is to sprinkle all floors, shelves, mouldings and furniture liberally with common salt, allowing it to remain two or three days if possible. The salt is harmless on wood and will brighten the rugs and carpets—Hugh V. Harris, Sebastopol, Cal. (II)

If You Have Very Rich Soil and can have a constant moisture supply, grow about six plants of Brussels sprouts. They are the finest flavored when fresh of all the plants in the cabbage and cauliflower list.


Rhodes Grass

The following extract is from the U. S. Department of Agriculture Bulletin 1613:

Rhodes Grass was first cultivated because of its pasture value. It bears trampling well, recovers quickly after it is eaten down, and is relished by all kinds of livestock. In pastures favorably located, Rhodes Grass will support about two steers to the acre for 9 to 10 months and double that number during the more favorable parts of the year. The quality of hay made from Rhodes Grass is superior to that of most other grasses in that it contains a larger proportion of leaves, while the stems are slender, tender and sweet, so that the hay is eaten with very little waste. It retains its color well in drying, therefore making an attractive bale for market. Rhodes Grass will grow in alkaline soils where no other grass will grow.

Mr. L. O. Crummer, Brawley, Calif., has ten acres in Rhodes Grass, on which he has kept 400 hogs, 10 mules, 3 cows, besides having two large stocks of hay on hand, cut from his field. He recommends it very highly.

Gus Nellen, Gen. Del., El Centro, has about 8½ acres in Rhodes, on which he has kept 20 milk cows, also some hogs, and has about 12 tons hay left from the last year. His place was covered with Bermuda, so he just broadcasted the Rhodes Grass seed and turned the water in slowly and kept the place moist, and before long the Rhodes had the Bermuda choked out. Another advantage is that he can keep the cattle on it while irrigating, for it isn't hurt by being trampled on, for whenever the runners are trampled into the ground, they start to grow.

He also recommends it highly for hog pasture, as they like it very much and do well on it.

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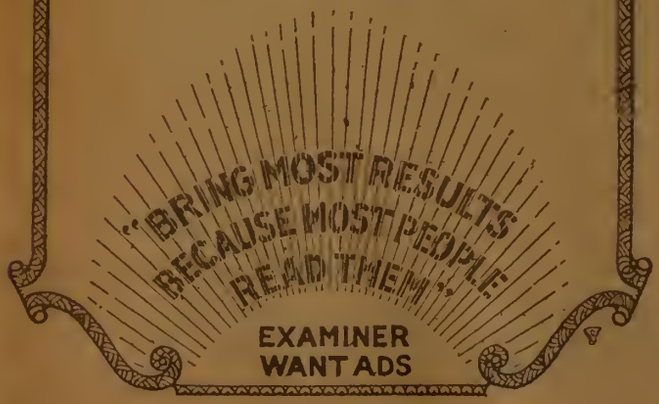



# YOUR GARDEN of FLOWERS

*by Helen Temple*

## The Culture of Carnations

TWO THOUSAND years ago the first carnations were discovered. They were small, pale pink blossoms, bearing little resemblance to the present cultivated flower. Our carnations are distinctly American. The European native carnation grows on small trees. The stems are short, the varieties are few and the quantity of blooms is limited. Consequently the tree carnation has lost much of its popularity since the advent of the wonderful American varieties.

Helen Temple

The varieties of carnations grown in home gardens should be chosen with a thought to color and climatic conditions. The delicate shades are best suited to the semi-tropical regions of California. In the interior the pure white and medium pink, scarlet and dark reds are best. The yellow carnations and the pale pinks usually fade too quickly in the heat of the interior. It is best to consult a local florist and buy slips and plants from him. The Roosevelt is a good dark red carnation. The Beacon and Victory are scarlet. Mrs. C. W. Ward is a medium pink. The Alma Ward, White wonder and White Enchantress give a variety of white carnations. I have named only a very few of the best known varieties which do well in the interior regions. If interior gardeners wish success with the variegated varieties shade should be provided during the hottest part of the day.

### SOIL AND SITUATION

Carnations do well in almost any soil if it is well cultivated and the proper drainage is provided. The best soil, however, is a light loam with good drainage. Carnations die very quickly if they are planted in a heavy, sticky soil that does not allow the water to drain off in a short time. The best location is one that is sunny at least half the day. If they are planted in a part of the garden where the sun is very hot, a heavy mulch of old cow manure and straw should be used around the plants.

Before the fall rains airslaked lime, limestone or woodashes should be spaded into the soil. If the soil is very light, spade under a large amount of old cow manure. If it is heavy, use as much well rotted horse manure as possible. Bone meal is often used as a final fertilizer before planting. It should be worked into the soil thoroughly.

### CARNATION DISEASES

Poor soil and neglect are the causes of carnation diseases such as stem-rot, rust, fairy ring spot and bacteriosis. Transplanting or setting out new plants into good, clean, loamy soil and digging the old bed up is the best remedy. However, when this is impossible, cultivate the soil thoroughly about the plants and spade under as much old cow and horse manure as possible. Cut out all dead and diseased tissue, then spray with Bordeaux mixture. For insects that attack the carnation, spray with the soap solution or tobacco extracts. Cut worms can be killed by using arsenate of lead or paris green.

### PROPAGATING CARNATIONS

Cuttings, seed and layering are the methods used for propagating carnations. However, the use of cuttings is the most common method. When seeds are used, as a rule it is done with the idea of finding new varieties. Layering is a simple method of replenishing the carnation stock at very little expense and trouble.

Cuttings are best when taken from strong plants in December or January. They should be short jointed and sticky and should be taken from the base of the old plant, or along the stems where the young shoots appear in the center of the leaves. Cuttings should be at least three inches long. Trim lower leaves up from the cut about an inch and a half. They may not become wilted from the time of cutting until they are firmly rooted, as wilting reduces their chance of becoming first class plants.

The best method by which to root cuttings is to use a cutting box about six inches deep. It should have holes in the bottom for drainage. In the box place a layer of gravel and ashes about two inches deep, packing down firmly. Over this put a layer of three and a half inches of clean river sand and wet down thoroughly. Use a small round stick about as large as the forefinger to make individual holes for the plants. These should be an inch and a half deep and an inch and a half apart. Firm the sand carefully about the cuttings and water thoroughly. Keep cutting box moist and in a shaded situation.

### THE LAYERING METHOD

Layering is done by allowing the plant to grow so heavy that the stems will lie upon the ground. Peel the bark from the lower part of the stem. Make a shallow trench and bend the stem down into it, covering with soil as close to the main plant as possible and leave the growing ends in the sunlight. The stem soon will grow roots along the cut surface under the soil and then can be cut and transplanted into a niche of its own.

Starting carnations from seed is done in the same manner as any other seedling. Use the seed flats and sand transferring when roots are well established into little pots or another box. The transplanting should be done as soon as possible as the sand of the seedling box soon will be too light to furnish sufficient food for growing plants. A mixture of sandy loam, sand and leaf mold furnishes an ideal soil for young plants.

The use of the cutting method, however is best. In a month's time the cuttings usually are ready to be transplanted in the garden or into three inch pots. A month's growth in the little pots filled with rich loam and a little bone meal will do much toward making strong plants. Gradually accustom the plants to strong sunlight and make them bushy by pinching back the tall shoot.

The young plants should be set out in April. The rows should be two feet apart and the young plants should be about a foot apart. In a border it is best to allow about a foot and a half between each plant. Keep the soil well cultivated. Irrigate thoroughly as often as the soil will absorb the water and during the hot months supply a heavy mulch. Stake the plants as soon as they begin to droop. Pick off the small buds, thus giving the main bud a chance to develop. In this manner the finest blooms are produced. The carnation plant will furnish [illegible] blooms for at least two years if it is cultivated, irrigated, pruned and given a sufficient amount of part shade.

## Garden Work in July

JULY [illegible] for a great deal in carnation [illegible] If the surface of the soil is finely pulverized the moisture will escape very slowly and cut irrigation operations in half. The soil should be cultivated as soon as it can be worked after irrigating. Heavy [illegible] should be worked at the proper time, or [illegible]

(Continued on Next Page)

# Boys and Girls

## The Kingfisher

THERE is about as much difference between the American Kingfisher and his Asiatic cousins as the breadth of the blue waters that separate them. Our species is modestly garbed in gray and found along mountain streams, nesting in a hole in the bank.

The Chinese species, however, is a brilliant blue. Sections of the feathers are used in making the wonderful Kingfisher feather inlay work of Canton. This industry, unfortunately, brings blindness to thousands of Chinese boys because of the minuteness of the work and the consequent strain upon the eyes.

## A Feathered Bandit

THE Southern Pacific Company's Sunset Limited was held up this week by a woodpecker—a red-headed one. The Limited was clicking off the miles toward El Paso when a block signal ahead dropped red, forcing the engineer to stop and giving the flagman an opportunity to stretch his legs until the next clear block showed against the horizon. No train was in sight.

Investigation disclosed the fact that a red-headed woodpecker, one of the busy kind that builds its nest in the tops of telegraph poles, had pecked away the lead wire to the track relay post just east of the signal.

As the block signals automatically order "stop" when anything happens to the mechanism, the feathered red-head successfully prevented the progress of a trancontinental train—and escaped punishment.

## Gettin' His Goat

ONE hot August day a small darky was dragging a billygoat up the street. The goat hung back, and the darky was sweating and swearing, much to the amusement of bystanders. Finally the darky, worn out and ready to cry, said:

"Lookee yar, white folks, if you all know any way to make this goat go I wisht you would."

Just then a doctor stepped up and said: "Boy, do you want that goat to go?"

"I sho' does, boss."

The doctor took a small bottle and poured a few drops on the goat's rump. The goat let out a bellow, butted the darky over, and tore over the hill. The boy got to his feet, looked after the goat, then at the doctor.

"Say, boss, whut dat stuff cost whut you drap on de goat?"

"Oh, about a nickel."

"Well, drap about a dime's worth on me, cause I sho got to cotch dat goat befo' night."—G. M. B. in Goat World.

## *A New Contest*

***First prize*** ..... ***$1.00***
***Second prize*** ..... ***.50***
***Third prize*** ..... ***.40***

ALL IN BRIGHT, NEW, SHINY DIMES

**Here is an opportunity to fill up your dime bank or buy something you would like with your very own money. Write and tell the contest editor something that you have observed about birds; describe the nest of some feathered songster in the pepper tree in the back yard, tell about the family of mocking birds that perhaps have made a home nearby, or anything else about birds that would prove interesting to other boys and girls.**

**The two paragraphs above are descriptive of some of our bird friends. Can you not write as good a story?**

**Maybe you have made bird houses, and, if so, you might describe the house you have made and if possible send a photograph of it. Or if you want to begin one now, you might write a story about the one you are going to build. There is a great variety of styles of "architecture" and the little rustic houses made of twigs and bits of bark are most attractive. I am sure Mrs. Blue Jay would be an eager tenant of such a [illegible]**

**Let's see what you can tell us about our interesting feathered friends. The story should not exceed 200 words. Send it later to the Editor of ORCHARD AND FARM, 1111 South Broadway, Los Angeles, not later than August 10th. The names of winners will be published in the September issue.**


# Firestone

## 30x3½ Standard Non-Skid Tire

**$13.95**

This new low price is made possible by strictest economies and specialized production.

Plant No. 2 was erected for the sole purpose of making 30x3½-inch Non-Skid fabric tires. With a daily capacity of 16,000 tires and 20,000 tubes, this plant permits refined production on a quantity basis.

All materials used are the best obtainable. The quality is uniform. It is the best fabric tire ever offered to the car owner at any price.

## Firestone Cord Tires

Tire repair men, who judge values best, class these tires as having the sturdiest carcass made. Forty-seven high-grade car manufacturers use them as standard equipment. They are the quality choice of cord users.

| | | |
|---|---|---|
| 30x3½-inch Cord | - - - New Price | $24.50 |
| 32x4 " " | - - - " " | 46.30 |
| 34x4½ " " | - - - " " | 54.90 |


## Flower Garden

(Continued from Page 26)

efit of the irrigation is almost entirely lost. The best method of irrigating the heavy soil is by the use of a deep trench between the rows of plants. As soon as irrigation is finished close the trenches with the heaped up earth along the sides. Most of the gardens in the interior should be mulched this month. Planting operations are somewhat limited in July. Stocks, pansies, lobelias, cosmos, canterbury bells and antirrhinum may be sown in the semi-tropical, coast and mild interior regions. Transplant all seedlings that have established good root systems as soon as posible.

HOW is lippia grass started? How should the soil be prepared and the grass cared for?—Mrs. E. S. S., Atascadero, Cal.

Lippia is propagated with slips. Prepare soil as for other lawns: soak until almost muddy. Push six inch slips of lippia into soil about eight inches apart. Sprinkle every day. Lippia lawns need very little attention after they are well established. An occasional watering is all that is necessary.

**Solves Farm Problems**—"I enjoy ORCHARD and FARM to the fullest extent, and you most certainly are solving many of our farm problems."—Mrs. John Southard, Los Molinos,


# Western Surface Irrigation Pipe

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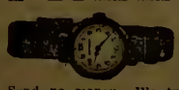

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6634 Sunset Blvd HOLLYWOOD, CAL. — Dept O

# HELPFUL HINTS for THE HOUSEWIFE

Edited by Isabel Sinclair

I meant to do my work today,
But a brown bird sang in the apple tree
And a butterfly flitted across the field,
And all the leaves were calling me.

And the wind went sighing over the land,
Tossing the grasses to and fro,
And a rainbow held out its shining hand—
So what could I do—but laugh and go?
—Richard Le Gallienne.

Dear Friends—

While I was visiting a friend the other day, the little girl of the house came in and sat beside me, hugging under her arm her new treasures. In answer to my questions, she laid before me four small pocket edition books, devoted respectively to the subjects of trees, flowers, birds and butterflies.

Eagerly she turned the pages to some of the beautifully colored illustrations and explained how she and her mother and brother had gotten the housework done in the mornings, and then gone "exploring."

I soon learned that this busy farm mother, unable to get away from her work or home for a much needed rest, took advantage of the children's vacation. She taught them to help her with her many duties, and then in the afternoon at least once a week, they put on their sun hats, took the little black books and set off for the woods on a nature-study expedition.

The children were enthusiastic in their hunt for wild flowers. They listened for the song of their feathered companions, and the trees and butterflies became intensely interesting friends. The mother admitted that the spontaneous youth of her children had become contagious and she always felt at least ten years younger upon their return home.

After all, God's beautiful out of doors is the greatest of tonics for depression, fatigue and troubles, and the lilt of a bird-song, the fragrance of summer woods, or the tinkle of a silver stream are soothing to tired nerves, sending one home refreshed and rejuvenated.

If you are not yet acquainted with Mother Nature's household, arrange your work systematically, let Johnnie or Susie help you, and set aside an afternoon each week during the summer months to absent yourself from household cares and enjoy the bit of rest and quiet every busy mother is entitled to.' Sincerely,

Isabel Sinclair

## Little Helps

A dress form will save many dollars for the woman who wishes to economize in dressmakers' bills.

When cream is too thin to whip it may be made sufficiently thick by adding unbeaten white of an egg, beating in usual manner.

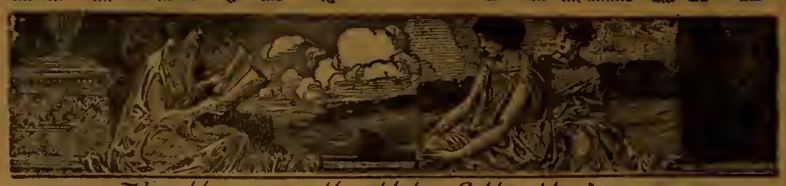
Camphor gum kept in the drawer where silverware is stored will prevent it from tarnishing.

Sweeten old lard or butter jars and meat crocks by filling them with very hot lime water, and leaving until it is cold.

Petunias bloom so freely and are so bright in color that they serve an especially good purpose where a mass of bright color is desired on the lawn.

When making starch add a teaspoon of salt before it is done. A gloss will be added to the clothes and they will be easier to iron.

Try using lukewarm water when washing lettuce and spinach. The sand may be removed very quickly from spinach and it will be unnecessary to wash it so many times. With lettuce, lukewarm water easily removes all dirt and insects, but it should be wrapped in a towel and crisped on ice or placed in cold water to freshen.



*The Home is the Hub of the Universe*

## How to Use "Left Over" Bread

TOASTING is the most common method for making stale or partly stale bread attractive, but it is by no means the only one. If partly stale bread is put into a very hot oven for a few minutes it grows softer, probably because the heat tends to drive the water from the crust back into the crumb.

Such warmed over bread is not as soft and springy as fresh, but most persons find it very appetizing. A good plan, therefore, when bread has lost its freshness, is to cut off what will be needed at a meal and place the slices in a hot oven for a few minutes just before serving. In this way bread which ordinarily would be considered too stale can be used on the table.

"Twice-baked bread," that is, cut bread placed in the warming oven or in a pan on the back of the stove and allowed to dry out slowly until it is slightly brown and crisp throughout, offers still another way of making stale bread attractive. If desired, this twice-baked bread may be crushed with a rolling pin and used like the ready-to-eat breakfast cereals. In some localities this dish has long been known under the name of rusks.

The little fried cubes of bread called croutons, which are served with soup, may be made of odds and ends of bread. To save time, bread simply broken into small pieces may be fried either in deep fat or in a pan (sauteed) and used for the same purpose.

Sometimes bread crumbs fried in a pan are used as a seasoning or sauce for meat. French cooks frequently put pieces of stale bread in soups just long enough before serving for them to soften; the well known dish, "crust in the pot" (croute au pot), is simply a thin soup with bread in it.

There are many ways of using stale bread in cooking. Almost every good cook book gives directions for preparing soft and dry crumbs for use in scalloped dishes, bread puddings, etc. The soft parts of the bread may be used in place of flour or corn starch for thickening soups, sauces, gravies and stewed tomatoes (either fresh or canned).

### MARJORIE'S SUNSHADE

MARJORIE has
a sunshade,
Of gayly-printed
chintz,
How gracefully she
holds it!
How bright the
golden tints
Of Marjorie's soft
ringlets,
Where the
sprightly sun-
beams play.

(The sunshade would protect her,
But—it's turned the other way!)

ON Marjorie's new sunshade
Are gorgeous birds and flowers.
She even takes it with her
In the early morning hours!
There are admiring glances,
For she looks her best today.
(The gay sunshade would hide her,
But—it's turned the other way!)

—*Doris Virginia Lee*

## Home Made Cement

A GOOD cement for repairing a cracked stone jar or crock can be made by mixing equal parts of wood ashes and salt with enough water to make a thick paste. Fill the crack with the mixture and allow to dry slowly. —G. Fitzgerald, Los Angeles. (H)

## Fireplace as Ventilator

A FIREPLACE is a good form of foul-air flue, and if the house has several fireplaces other such outlets are not necessary. If several rooms open into one, in which there is a fireplace this usually is sufficient. All fireplaces should have dampers so as to assure positive regulation as a vent flue.

## Summer Salad

| | |
|---|---|
| 1½ c. cold boiled tongue, diced | 1 c finely cut celery |
| ½ c. minced ripe olives | 2 tbsp. minced onion |
| | Seasonings |

Mix ingredients and marinate with French dressing. Serve in lettuce cups with boiled salad dressing.

The above is only one of many delicious tested olive recipes contained in the "California Ripe Olive Recipe Book," published by the California Ripe Olive Association, Higgins Building, Los Angeles. The booklet will be sent free upon request.

## Wash Day Hints

A LITTLE turpentine added to the water in which clothes are boiled will help to whiten them and remove stains. Agitate the wash water with a piece of good laundry soap. This will cause the lime to rise to the surface in flakes and when skimmed off, will leave the water soft. A weak solution of borax water used in place of starch will provide sufficient stiffness for thin materials. Add a little borax to the starch and the iron will not stick.—G. Fitzgerald, Los Angeles. (H)

## Sausage Casings

WHEN the supply of casings is limited make sacks of thin muslin about three inches wide and a foot or more in length, sewing a loop in the end to hang up. Dip the sack into hot lard and fill with the sausage, roll in flour and hang in the meat house to smoke. Another way in which to save the sausage meat is to pack it in deep pans or lard cans and set in a hot oven, cooking until about half done. Remove and cover with meat roastings or lard and set in a cool place. Slice rather thick and fry as needed.—M. E. McDaniel, Templeton, Cal. (H)

## Cockroach Exterminator

ONE of the simplest means of getting rid of roaches is to dust with either pure or diluted commercial sodium fluorid. To dilute, use one-half sodium fluorid and some inert substance such as powdered gypsum or flour.

By the use of a dust gun or blower, the sodium fluorid can be dusted thoroughly over the shelves, tables and floors, and the runways and hiding places of the roaches.

The powder causes the insects to come out of their retreats and rush about blindly, showing evidence of discomfort, followed in the course of a few hours by their death. The dead or paralyzed roaches can be swept up and burned, and complete extermination is effected within 24 hours.

**Full of Interest**—"We find many interesting and helpful things in Orchard and Farm."—Edith Schmidt, Tuscarora, Nevada.

# PRETTY COSTUMES

## Selected by Isabel Sinclair

*These costumes are simple and can be made readily by the home dressmaker from the instructions provided. Send 15 cents in silver or stamps for each pattern desired. Address Pattern Department, Orchard and Farm, 1111 South Broadway, Los Angeles. Give full name and address.*

**3626—Junior's Dress**

Cut in 3 sizee: 12, 14 and 16 years. A 14-year size will require 4⅛ yards of 27-inch material. Price 15 cente.

**3625—Misses' One-Piece Dress**

Cut in 3 sizee: 16, 18 and 20 years. An 18-year eize will require 3⅞ yarde of 44-inch material. The width of the ekirt with plaits drawn out ie about 2⅜ yards. Price 15 cents.

**3624—Lady's Dress**

Cut in 7 eizes: 34, 36, 38, 40, 42, 44 and 46 inches buet measure. A 38-inch size requires 6¾ yards of 44-inch material. The width of the skirt at the foot ie 2 yards. Price 15 cents.

**3627—Girl's One-Piece Dress**

Cut in 4 sizes: 8, 10, 12 and 14 years. A 14 inch size requires 3¼ yards of 36-inch material. Price 15 cents.

**3600—Lady's Apron and Oven Cloth**

Cut in one eize: medium. The apron requires 1⅜ yards, and the oven cloth ⅝ yard of 27-inch material. Price 15 csnts.

**3634—Lady's Night Dress**

Cut in 4 sizes Small, 34-36; medium, 38-40; large, 42-44; extra large, 46-48 inches bust measure. A medium size will require 5¼ yarde of 36-inch material. Price 15 cents.

**3285—Hat and Apron**

Cut in 4 sizes: 1, 2, 3, 4 and 5 years. A 4-year size will require 2⅜ yards of 27-inch material for the apron and 1 ysrd for the hat. Price 15 cents.

**3261—Child's Dress**

Cut in 4 eizee: 2, 3, 4 and 5 years. A 4-ysar size will require 2¾ yarde of 27-inch material. Price 15 cents.

**3622—House or Porch Dress**

Cut in 7 eizee: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38-inch size will require 7 yards of 27-inch material. The width of the skirt at the foot is 2½ yarde. Price 15 cente.

**CATALOGUE NOTICE**

Send 15 cents in silver or etampe for our up-to-date spring and eummer 1921 catalogue, containing over 500 designe of ladiee', misses' and children's patterne, a conoise and comprehensive article on dressmaking; also "Some Points for the Needle," illustrating 30 of the various eimple stitches. All valuable hints to the home dressmaksr.

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Pattern No. ..... Size.....

Pattern No. ..... Sizs.....

Be sure to give number and size. Send ordere for psttern to ORCHARD AND FARM, 1111 South Broadway, Los Angeles. Be sure to sign your full name and address below.

*". . . places far apart are brought together, to the present convenience and advantage of the Public and to the certain destruction, in time, of a host of petty jealousies, blindnesses and prejudices, by which the Public alone have always been the sufferers."*
*From Charles Dickens' Preface to Pickwick Papers.*

# The Advance of Understanding

Even romance of sixty brief years ago could not imagine the great advance heralded by the passing of the stage coach. The railway and telegraph were coming into their own; but the telephone had not been so much as dreamed about.

Yet the wise men of that day saw the imperative need. They saw the value of every step which brought people into closer communication with each other. They knew this to be the one way to increase understanding; and to eliminate the "host of petty jealousies, blindnesses and prejudices, by which the Public alone have always been the sufferers."

Then came the telephone. And with its coming time and distance are swept away and a hundred million people are made neighbors.

Places far apart are brought together by 34,000,000 conversations a day over the Bell System.

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In answering advertisement please mention Orchard and Farm.

CALIFORNIA IRRIGATED LANDS
IRRIGATION plus California climate eliminates chance in farming. Let us tell you about Safe Farming on Sutter Basin Irrigated Bottom Lands. Write for literature to Land Department, SUTTER BASIN COMPANY, California Fruit Building, SACRAMENTO, or to W. L. White, 509 Balboa Building, SAN FRANCISCO, or to C. D. Saunders, 509 Security Building, LOS ANGELES.

### RAISE GRAPES

BUY 10 acres of our grape land at $60 an acre and have an independent income in three years. Sold on easy terms. You can arrange with us to plant and care for your land until it is producing. Call or write for descriptive matter. LEROY LEEONARD, 524 Black Bldg., 4th and Hill, Los Angeles.

FOR QUICK SALE—10-acre home in Mondocino Co., California; includes one good cow, 35 laying hens, 2-room house, barn, fenced; 2 acres in crop vegetables, berries and fruit trees. All in fine condition. Price, $1000. This is a bargain. Write for particulars to Y. R. Mitchell, Box 31, Caspar, Cal.

MEXICAN LANDS—400 acres in American colony, near Hermosillo and Southern Pacific Railway. Rich river bottom land; will grow anything; two crops each year. Investigate this opportunity to start big farming at small cost. Owner, 320 Ochsner Bldg., Sacramento, Cal.

RANCH for sale, 480 acres, ninety miles south of Calgary; 175 acres under cultivation, house, barns, cattle, etc. Particulars on application. Address D. ASHWORTH, Livingstone, Alberta, Canada, via Lundbreck.

OREGON—400 acres, 2 sets of buildings. Orchard, water, timber, fishing and hunting. $25 per acre. Write for list of other good buys to Henry Ambler, Philomath, Benton County, Oregon.

FOR SALE—5 and 10-acre tracts, best San Fernando valley lands, fine for citrus fruit, grapes, alfalfa, city water, $425 per acre. O. P. Smith, 810 Wright and Callender Bldg., Los Angeles.

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135-ACRE dairy home, new house. Gravity water, 14 cows. Price $6,000. Terms. Address Box 186, Bandon, Coos Co., Oregon.

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## COUNTRY PROPERTY—For Sale

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## REAL ESTATE—Sale or Exchange

FOR SALE OR TRADE—600 acres good level unimproved land in Klamath Co., Oregon. Wanted in trade, place suitable for bees, ducks or chickens. Price $10.00 per acre. W. H. Johnson, 22 Maple Ave., Watsonville, Calif.

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WANT to hear from party having farm for sale. Give particulars and lowest price. JOHN J. BLACK, 110th street, Chippewa Falls, Wisconsin.

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One 20 H. P. Witte.
Two 25 H. P. Westerns.
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Two 15 H. P. Samsons.
One 20 H. P. NB Type Fairbanks.
One 20 H. P. Commercial.
One Continental Engine and D. C. 6-inch Pump.
One 12 H. P. International.
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One 3 H. P. Simplicity.
One 15 H. P. N Type Fairbanks.
One 15 H. P. N Type Mounted Fairbanks.
One 15 H. P. Western.
One 18 H. P. Western.
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Starting Tomorrow


# Practical Potato Pointers

(Continued from Page 10)

which was transformed into a state readily assimilated by the plant roots.

An interesting method of frost prevention is described and will be of interest in contemplation of the fall crop of tubers. A field which had been seeded with carefully selected stock was furrowed out the last two times instead of being cultivated, the water being allowed to run slowly down the rows after each furrowing. A frost that occurred late in October did practically no damage to this field, whereas the field adjoining, with only common field-run seed and open cultivation without irrigation, was materially damaged by the frost, with resultant loss in yield. It was quite apparent that copious irrigation alone would not obtain these results, but the combination of good, selected seed (which gave the plants a vigor and thriftiness) and timely irrigation proved most effective.

### POTATOES FOLLOWING ALFALFA

It has been a strongly-supported contention that potatoes, following the turning under of alfalfa, would greatly increase in yield. Mr. Olsen had a very marked demonstration which disproved to a certain extent this theory. The stand of potatoes on the field previously planted to alfalfa was far inferior to that of the other lands where melilotus or vetch had been used. The vines were of a pale yellow or greenish color and lacked the sturdy, healthy appearance to be desired. The number of tubers did not come up to normal and they were undersized.

There were several explanations for this condition. Some contended that the alfalfa did not supply sufficient potash and phosphoric acid, while others claimed that the condition was due to nitrogen—starvation because of the fact that the alfalfa had not had time to decompose thoroughly enough to liberate the necessary ammonia which combines to form the easily assimilated nitrate salts. The latter explanation is accepted.

It is known that the soils of the southern part of the State contain in their natural condition sufficient potash and phosphoric acid to mature innumerable crops, but it is quite necessary to incorporate into the soil sufficient organic matter to change these insoluble plant foods into a form that can be assimilated by the roots. This field gave every indication that the trouble was due to the "tying up" of the much-needed nitrogen, supplemented by the lack of a suitable medium for transforming the other insoluble plant foods into a soluble form. Both the hay and roots of the alfalfa are slower in decomposition than either melilotus or vetch, and this fact seemed to be the indirect cause of the trouble.

The Maxwell ranch, in the same district, offers a good example of the effect of continuous cropping without the addition of organic matter. This land has been continuously farmed for the last six or seven years to truck crops by an Oriental. He has practiced no methods of conserving fertility, with the result that the stand of potatoes this year is very poor. It was quite evident that the lack of a good stand was due in the first place to inability to secure a proper seed bed.

The ground was in such poor physical condition that it was impossible with even a great amount of work to get it in shape for the seed to germinate, although the land was well irrigated and then plowed and harrowed as soon thereafter as possible. This field of potatoes clearly demonstrated that it is vitally important in the growing of any field crop that a suitable rotation be practiced, whereby the necessary organic matter (whether in the form of green cover crops, legume straw or barnyard manure) will be supplied to the soil.

### ORDINARY METHODS FAIL

The White ranch, near Owensmouth, offers an example of the light stand of potatoes that may be secured on what is considered good potato soil. A certain field on this ranch has had only one previous crop of potatoes, having been planted to Henderson Bush beans for a number of years. This field has clearly demonstrated that ordinary "field-run" seed and ordinary cultural methods usually result in a low yield of potatoes. A considerable portion of the seed did not sprout and that which sprouted showed lack of vigor and uniformity. This field is typical of a great many all over the State, where ordinary methods of farming are practiced, little attention being paid to selection of seed or to careful preparation of the seed bed.

The attributes of success in producing the fall crop of potatoes are summed up as follows: Careful attention must be given the seed selection; the seed bed must be well prepared and must contain sufficient moisture to sprout the seed tubers; the best cultural methods must be applied thoroughly and at the right time.

It is recommended that the grower who specializes in potatoes turn under a green crop every other year, and in some cases every year. Melilotus indica and vetch are recommended in Mr. Bougher's report, although a number of growers have secured excellent results with cow-peas, as reported by M. M. Link in the December, 1920, number of ORCHARD and FARM.

*Typical Hills of Olsen Ranch Tubers*


## BIRDS, DOGS, PETS

ENGLISH Bull Terrier pups from champion Flying Snow and Edgecote Tuffy. Money-raising pups. Large litters. A. F. Cornwall, 3606 35th Ave., Oakland, Cal.

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## ASSAYERS AND GOLD BUYERS

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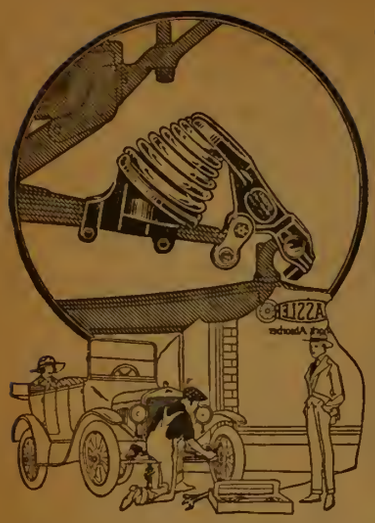

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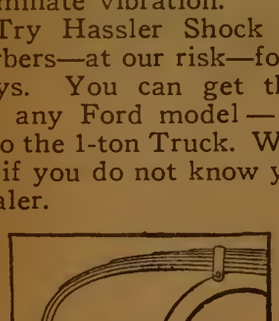

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# Timely Topics in Citrus Circles

By Robert W. Hodgson

## Saving Gophered Trees

CITRUS growers this season are experiencing unusually heavy losses from the work of the pocket gopher, which within the past five years has come to be recognized as the principal rodent pest with which the citrus grower has to deal.

Robert W. Hodgson

So serious is the problem that practically every large orcharding concern now employs a professional "gopher-getter."

But in spite of all that can be done, some trees are certain to be injured and to require treatment if they are to be saved. Fortunately, in the lighter soils, a considerable percentage of injured trees frequently recover without any treatment whatever, even though badly chewed, due to conditions favoring the development of new bark tissue.

### FOR LIGHTER CASES

Where the injury is severe (particularly in the heavier soils) natural recovery is not to be relied upon, and some form of treatment is advisable. If the injury is discovered within a short time, cleaning the wound and painting it over either with grafting wax or a pure asphaltum compound usually will encourage healing, by providing conditions favorable to the regeneration of bark.

Where the girdling is deep enough to have resulted in the complete loss of the cambium layer, or where it is not noticed until months after its occurrence, other treatment is necessary. It is possible, however, to save trees which have been entirely girdled and where the injury is a year old or more. The methods recommended by the Agricultural Extension Service of Los Angeles County and demonstrated in a recent series of meetings held under the auspices of citrus farm bureau centers are those of "bridge-grafting" and "in-arching."

The former can be used only where healthy bark occurs below the girdled area. Where such is available, "bridges" of sour stock are inserted, with both ends in good bark tissue, the bridges serving to provide new paths of sap flow and saving the tree.

In most cases, however, no bark suitable for bridge-grafting remains below the injured area, and recourse is had to in-arching. With this method, sour stock seedlings, three to five in number, are planted about the injured tree, the trunks being grafted into that of the girdled tree. An inverted "T" incision is used, the stalks of the seedlings being prepared with a long, sloping cut, forced into the incision, tacked into place, and thoroughly waxed over.

If the work is done properly, union results in a few weeks, and within a very few months a pronounced improvement takes place in the appearance of the girdled tree. It rapidly comes back to normal, being supplied with a new root system, and in the course of a season or two, entirely recovers. W. M. Mertz of the Foothill Frostless Company, at Alta Loma, reports treating some two hundred gophered lemon trees with the failure of only two.

## The Spray Dilemma

THE last word on spraying citrus trees has not yet been said. New developments are occurring all the while, some of promise and some not so promising. While spraying seems to provide a reasonably satisfactory method of control for moderate infestations of citricola scale in the San Joaquin Valley citrus districts, Southern California citrus growers have placed greater reliance on fumigation for scale control. On the other hand spraying generally is recognized as the best weapon the grower can use against citrus red spider.

During the last year or two a number of proprietory sprays have been placed on the market with the recommendation that they be used to control both spider and scale. The use of these sprays, while in some instances effecting scale control, in others ridding the trees of spider, and in a very few instances accomplishing both, almost invariably has affected the flavor of the fruit.

### A STRANGE SITUATION

Investigation has disclosed the fact that this effect, which results from destruction of the acid, is due to the arsenic contained in the spray. And yet, lead-arsenate is recommended as a means of control for the orange tortrix worm, which the past season has exacted a toll of as high as 15 per cent of the crop in certain districts. The worm must be controlled. Arsenic is recommended. Arsenic injures the quality of the fruit. But the fruit hangs on better. And red spider injury is less. What is the poor citrus grower to do? Shall he spray and hurt the quality? Or shall he not spray and lose the fruit? These and other questions of equal importance were given a thorough airing at the annual fumigation and pest control school at Whittier on June 25, a full report of which will be available soon.

## Fumigation Developments

CITRUS growers are awaiting anxiously anouncement of fumigation recommendations for the coming season. Last season's unsatisfactory results are attributed by many to imperfections in the new liquid gas method. Chief among criticisms of the new method are the fact that the gas generated is cold as contrasted with the hot gas generated in the pot method and in the cyanofumer. An advance report indicates that one of the new improvements is a device for heating the gas discharged from the atomizer gun.

At any rate, a number of the fumigating operators are planning to try the three methods side by side this coming season.

## Accurate Cost Accounting

DURING recent months the California citrus industry has been in the situation where there was a need of accurate data upon costs of production. Those whose duty it has been to gather such data are unanimous in their testimony as to the difficulties encountered in finding reliable figures.

This only emphasizes the importance of each grower keeping records without which he is not in a position to know whether he is actually getting ahead or whether he is only "fooling himself." Every citrus grower owes it to the industry as well as to himself, to keep books and to know his production costs.

A simplified system of farm business record is available to every grower who applies to the County Farm Advisor. No doubt special forms for recording and arriving at production cost data for citrus growers will be developed and come into deserved wide use.

# Dehydration of Prunes---Professor Christie

(Continued From Page 17)

size have been found most efficient, although slat-bottom trays are quite satisfactory—and cheaper. Ordinary, solid wooden field-trays also can be used, providing they are separated by blocks which provide at least a 3-inch, free air passage between trays. If 3x6 feet or 3x8 feet trays are used, they should be placed in the dehydrator so that the air flows across the width and not the length of the tray; otherwise uneven drying will result. The usual tray load is 3 pounds to the square foot.

### THE STEAMING PROCESS

Steaming the prunes on trays before dehydration has been tried as a substitute for lye-dipping. Although slightly less expensive and troublesome, steaming can not be said to be as efficient. If exposed to an ample volume of steam for 2 to 5 minutes in a closed compartment, the skins of the prunes will crack, and drying may be as rapid as after lye-dipping. Steaming however, often causes large cracks which exude juice during drying, making the prunes sticky. Steamed prunes generally are of a reddish tint, and not as black as lye-dipped prunes.

### TEMPERATURE

In most dehydrators the prunes are entered at a temperature of 120 to 140 degrees and finished at 160 to 180 degrees. In tunnel dehyrators, this is known as the "counter current" system, and results in an excellent product if the prunes are removed from the high temperature before becoming overdry.

At least one commercial plant successfully tried the "parallel current" system, which means that the fresh fruit is entered at the higher temperature, at least 190 to 200 degrees, and moves progressively toward the region of lower temperature, being finished at 150 to 160 degrees. In this case the heated air and fruit move in the same direction, whereas in the "counter current" system the air and fruit move in opposite directions.

The "parallel current" system has the advantage of conducting the initial drying at a high temperature, when the fresh fruit is in a condition to give up its moisture very rapidly and without injury to its quality. The drying then is completed at a sufficiently lower temperature to avoid all possible injury. The "parallel current" proves much more efficient than the "counter current" system on certain fruits and vegetables and will be given a thorough trial on prunes this season.

If the drying of prunes is completed in dry air of 160 degrees or higher, the drying will be somewhat retarded by case-hardening. This can be overcome by using air of 20 to 25 per cent humidity, which may be readily obtained by recirculation of sufficient moist exhaust air. In some cases case-hardening has been so marked that operators remove the prunes from the dehydrator thinking they were sufficiently dry. But after several days of sweating, the excess moisture left in the interior of the prunes diffused to the surface, making it necessary to re-dry the fruit.

### DRYING TIME

All properly-constructed, air-blast dehydrators were able to dehydrate French prunes in 24 hours or less. It is expected this season that with the "parallel current system" and greater air velocity, this time will be reduced materially. Natural draft driers required from 30 to 40 hours under the same conditions. The large Imperial prunes always will require at least 6 hours longer than the smaller varieties.

### QUALITY OF PRODUCT

Dehydrated prunes are of excellent

uality. They are of course, free from ust or grit, and are glossy and attractive. The flesh is a light amber color and free from any discoloration such as sometimes is found in sun-ried prunes which have partly fermented. When cooked, their high quality is evident. It was interesting to ote that the workmen in prune dry-yards where dehydrators were em-loyed, invariably ate large quantities of the dehydrated prunes but rarely touched the sun-dried product.

COMPARATIVE YIELDS

Carefully-controlled tests failed to reveal any difference in the yields of dehydrated and sun-dried prunes, providing both were reduced to the same moisture content. Many prunes were removed from the dehydrator with a moisture content of 20 to 22 per cent, which gives a soft, pliable product which keeps well, whereas sun-dried prunes usually are reduced to 16 or 17 per cent moisture. This gives a notable increase in yield in favor of the ehydrator.

COST OF DEHYDRATION

One of the largest plants in the state, an efficient tunnel dehydrator equipped with conveying machinery, reports the following requirements for dehydrating each green ton of prunes:

LABOR—6 ½ man hours.
FUEL—16 gallons oil.
ELECTRICITY—20 Kilowatt hours.
LYE—10 pounds.

At present prices this would not exceed $5.00 per green ton. In the many maller plants tested, the labor, including that required for dipping, varied rom $5.00 to $12.50, the fuel from $1.25 o $3.25, and electricity from 10 cents o $1.50, the total ranging from $8.00 to $16.00 per green ton. Very few air-blast dehydrators exceeded $10.00 per green ton for operating costs. Some ehydrators realized a good profit from ustom dehydration at $15.00 per green on. The nominal cost for fuel and ower in an efficient dehydrator may e more than counterbalanced by the reater cost of labor for sun-drying.

PROCESSING AND PACKING

The processing and packing of dehyated prunes gave trouble in several acking houses last leason. When deveries of dehydrated prunes containg over 20 per cent of moisture were xed with sun-dried prunes of only per cent moisture and the resulting ixture processed in hot water in the ual way, the moister and tender deydrated prunes absorbed so much ter that they not only tended to disegrate but were liable to become ldy after packing.

If the prunes are not over-dipped in solution, nor dried at such a high perature as to cause them to crack, d finally are dried to the same ture content as sun-dried prunes, y may be readily processed and ed in the same way as sun-dried. ever, it is best always to keep deated prunes separate in order that ime of processing may be adjusted he moisture content. Since prunes e from the dehydrator clean and , it should not be necessary to dry them and then return part of moisture by dipping. However, it is necessary to store the prunes for some time in large or blending or other purposes, rocesing is the most satisfacy of sterilizing the product.

e the dehydrated prunes are they need not be washed in ut can be sterilized with steam, clean, glossy product with any oisture content and no loss or flavor. Dehydrators who their prunes to a packer must their prunes are dry enough the usual hot water dip. who pick their own d t r d e the moisture that required ln well


# Has the Drouth Crippled Your Water Supply?

The lack of rainfall in the valleys and snow in the mountains is causing the water plane in all localities to lower. In some instances the water has dropped to a point where it is impossible to reach it without lowering the present pumping equipment. If you are using a LAYNE & BOWLER PUMP we can furnish you with an extension to go on your present pump column, thereby lowering the bowls of the pump to a point where your water supply will be increased.

If you are using the open pit type of pump and the water is below suction limit of your pump, install a LAYNE & BOWLER PUMP directly into the well casing—increase the flow of water—get a bigger crop—and the extra profit thus obtained will more than pay for the new pump.

## Our Engineering Department Is at Your Command—Use It

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## Layne & Bowler Corporation

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BEES PAY

Bee-keepers can obtain from the Apiary Department of the Diamond Match Co. the finest quality of Bee-Keepers' Supplies at fair prices.

The Apiary Department, which is in charge of experienced Bee Keepers, is one of the largest of its kind in the United States, and maintains a constant excellence of product and unsurpassed service

Write for catalogue and if a beginner for Cottage Bee-Keeping, which will be promptly mailed free.

THE DIAMOND MATCH CO.
APIARY DEPARTMENT
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Our trees are grown under most favorable conditions in the choicest spots in California.

*LET US KNOW YOUR REQUIREMENTS EARLY*

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FRESNO, CALIF.

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# *Keep faith with your truck engine*

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Your truck engine will not deliver full service unless you keep it correctly lubricated.

Zerolene is Correct Lubrication. Our Board of Lubrication Engineers has recommended a grade of Zerolene for *your* engine and embodied that recommendation in the Zerolene Correct Lubrication Chart. Ask for one.

**STANDARD OIL COMPANY**
**(California)**



**MONEY-SAVING**
**AND**
**MONEY-MAKING**
# METHODS

**Tillage, Not Weather, Controls Crop Yield.**

**Campbell's Progressive Agriculture Tells How.**

Any farmer with ambition to make the most of his labor and realize the greatest returns for his investment will find in this volume a priceless guide for Dry Farming.

It is needless to say that the advantages to be gained from a single practical idea, taken from this book and put into practice, is worth many times the small expense incurred adopting the more approved methods. Planting without proper preparation of soil; planting at wrong time or in wrong way; wrong methods in cultivation, are common occurrences which a better knowledge of these subjects could easily prevent. It is poor economy indeed to save five dollars at the expense of a hundred.

**One practical idea taken from this book worth many times the cost of entire volume.**

**ORCHARD AND FARM,**
**LOS ANGELES, CALIF.**

Enclosed find $1, for which send, postpaid, "Campbell's Progressive Agriculture," including one year's subscription to Orchard and Farm. It is understood my money is to be returned if not fully satisfied.

Name .....

Address .....


## The "Bergtholdt Plan"

OF THE publicity plan for California food fruits, as outlined by J. E. Bergtholdt in previous issues of ORCHARD and FARM, George W. Bisbee, president of the Pioneer Fruit Company of Sacramento, writes in part as follows:

"Mr J. E. Bergtholdt,
"Newcastle, California.
"Dear Mr. Bergtholdt:

"We want you to know that the Pioneer Fruit Company and every one of its directors and executives are heartily with you and will aid you with every ounce of energy they posses and with every means in their power to bring about the success of your plan.

"Its potential possibilities in a few years would make California by far the richest State in the Union. Your plan is founded on common sense, and is easy of accomplishment. All it needs is the united efforts of those who will reap the richest reward. We can see without any stretch of the imagination that:

"It means hundreds of thousands more acres planted and producing.

"It means hundreds of millions more money to Californians.

"It means a doubling of our population and wealth within a few years.

"It means greater prosperity for every person in California.

"It means, Mr. Bergtholdt, so many big things for California that we hesitate to mention them.

"Your plan is big enough to command the active support and campaign of every Chamber of Commerce, newspaper, publisher, merchant, banker, grower and shipper of California.

"Your plan is for the benefit of all, and anything that is for the benefit of all the people is bound to be successful, and California some day will owe you a debt of gratitude."

## A New Avocado

EACH new avocado seedling or importation is anxiously watched, as there is always the chance that an improvement over those already growing in California may be found.

Hence there is much interest in the announcement that a fruit of unusually fine flavor recently has come into bearing. The fruit is rather small, but ripens in early spring, and for that reason may prove important, though it will be several years before it can be proven out.

On account of the fine flavor of this fruit the owner of the tree has named it the Delicious. It is a dark purple in color, pear shaped, weighing from eight to twelve ounces, with a small seed. The flavor is very smooth and buttery; it ripens in March and April.

George Schrader of Altadena planted the seed in 1906. It bore its first fruit in 1913, but was blown down in 1914 and cut back to the ground. From this stump a new tree grew which bore a small crop last year and about 200 fruits this year.

## Avocado Field Day

THE California Avocado Association has been invited by the citizens of Puente to hold a field day in their town and valley July 30. The visitors will bring basket lunches to be eaten in the largest walnut packing house in the world, which is an immense building with a high roof and plenty of doors and windows, assuring comfort. The Chamber of Commerce of Puente will serve avocado ice cream and coffee. After lunch visits will be made to some of the avocado orchards of the valley, and demonstrations of different methods of top working and pruning will be given.

## San Fernando Fair

THAT the San Fernando Valley Fair, to be held September 13-18 at San Fernando, will exceed in size and scope any previous exhibition held in the valley, is the prediction of the committees which are vieing with each other to make each department reach unparalleled proportions.

A large tractor and implement demonstration and "still" show, together with an extensive display of trucks and trailers will be a feature of the fair.

In other exhibit sections will be seen the official poultry show of the American Poultry Association. Horticulture, citriculture and general agriculture will receive equal attention.

# Sunflowers

## Bringing Up Father

*"It's quite a blowout," Wife insisted*
*"But," protested Farmer Brown,*
*"Must I change attire, my dear,*
*Just to drive to town?"*

—Justin Nutt.

## The "Green" Hand

The Boss—"How about that hen that wants to set—did you put her in the broody coop?"

His Nibs—"No, sir. I thought of a better way. I just tied splints on her legs so she has to stand up."

## Questions Answered

*(This department conducted by Hazel Nutt, sister of the famous poet, Justin. Her store of wisdom seems inexhaustible.—Ed.)*

When the figs on my trees are ripe, they fall off. Can you tell me what is the matter with them?—Subscriber.

This is a very serious condition. The only cure is to inject liquid glue into the trunk. Mixing with the sap, the glue causes the fruit to stick to the tree.

If it takes a farmer with a broken down flivver seven hours to drive seventeen miles, how far will a balky mule team take him, provided he uses up nine rawhide whips, an oak two-by four, and his entire vocabulary of oaths.—A. X. C.

While it is against our policy to reply to evidently facecious questions of this nature, in this case I would suggest that you divide the number of mules by the number of oaths and then add two more oak planks, a pitchfork and a box of hard clods. Then multiply by one. The result should be the number of miles the balky mules would cover before the driver was exhausted.

Something is wrong with my hens. They stand first on one foot, then on the other for long periods of time, evidently unwilling to set both feet on the ground.

Probably the earth is hot and they do not wish to burn both feet. Either place a cake of ice in the poultry yard for them to stand upon, or protect their feet with well-fitted asbestos pads.

What is the meaning of the term "lard-hog?"

A lard-hog is one that has been raised largely on shorts and therefore is rendered useful for shortening.

Are meat-scraps good for poultry?

Yes, because hens need exercise and they invariably scrap whenever meat is thrown to them. Just continue feeding the meat and let them scrap over it as much as they wish.

## True Satisfaction

An old darkey was the recipient of a discarded suit from his highly-respected employer.

"And how did you like the suit?" asked his benefactor the following day.

"It wuz jest right fer me, Boss," was the reply. "If it had been any better you would 'a wore it yo'self, an' if it had been any wusser nobody would 'a wore it."

**WINNING TITLE**

The prize of one dollar goes to George Seabright, San Francisco. Here is his suggestion for a title to accompany the drawing published in the May issue.

"Thoughts of a stable interior love and fine ice."

Many other good titles were received, but Mr. Seabright's was adjudged the most clever.

# One More Chance

to share in the distribution of nearly

# $150 in Cash Prizes

The Helpful Suggestions Contest has been continued until September. In addition to the scores of suggestions already received from subscribers, we want more money and labor-saving ideas.

## WRITE THE EDITOR TODAY

Describe your scheme for lightening the work or increasing the profits. Sketches or photographs desired but not required. Simply tell in your own way how you have put into practice some plan that would help other subscribers. The judges will select the winners, to be announced in the succeeding issue, and checks will be mailed to the fortunate ones as follows:

| | |
|---|---|
| First prize | $30.00 |
| Second prize | 20.00 |
| Third prize | 15.00 |
| Fourth Prize | 10.00 |
| *In Addition There Will Be* | |
| Five prizes of $5 each | $25.00 |
| Seven prizes of $3 each | 21.00 |
| Ten prizes of $2 each | 20.00 |

You must be a paid subscriber in order to take part. No limit to the number of entries from one subscriber. Write on any subject connected with agriculture or the farm home.

**Address: Editor,**

## ORCHARD and FARM

**1111 South Broadway, Los Angeles.**

**(Mark your communication "For Helpful Suggestions Contest")**

# Stolen—the Montalais Jewels

*How would YOU recover them?*

# $5000

*for the cleverest answers to this question.*

LOUIS JOSEPH VANCE, author of "Alias the Lone Wolf," a serial now appearing in Cosmopolitan, has solved this mystery in his OWN way. How the jewels were stolen he tells in the June issue, and in the concluding instalment, in September Cosmopolitan, he will tell how the Lone Wolf recovers them.

But YOU will have YOUR OWN IDEA as to how the jewels might be recovered. A full synopsis of the first two instalments appears in the June Cosmopolitan. You can take up the story with that issue. In the July and August issues you can read exactly where the jewels are. But how would you get them back to their rightful owner It is for your skill in solving this mystery, your talent for writing YOUR solution in the cleverest manner, that the publishers of Cosmopolitan offer a total of $5000 in cash awards, divided as follows.

**$2000 first prize**
**$1000 second prize**
**$500 third prize**
**$250 fourth prize—and**
**25 prizes of $50 each.**

Your solution need not be the same as Mr. Vance's. This is not a guessing contest in any sense of the word. It is purely a test of your acuteness, and your ability to write good, strong, descriptive English.

### These Are the Easy Rules of the Contest:

1. Write *five hundred words or less* giving your version of how the Montalais jewels might be recovered.
2. You may mail your solution (or as many solutions as you desire) any time between now and midnight of August 12, 1921. Solutions postmarked after that time will not be considered.
3. This contest is open to you whether you are a subscriber to Cosmopolitan or not. It is not necessary that you buy the magazine in order to enter the contest.
4. Employes, or members of the families of employes of the International Magazine Co. or of the organizations of which this company is a part, are barred from this contest.
5. Checks will be mailed to the winners as soon as the judges have arrived at their decisions.
6. The names of the winners will appear in the November issue of Cosmopolitan, which will be published in October.
7. No manuscripts will be returned and we cannot undertake to answer any questions.

***Send Your Solution to***

**Contest Editor, Cosmopolitan Magazine,**

**Room 305, 119 West 40th Street, New York City**

# Cosmopolitan

*"America's Greatest Magazine"*

# The right foundation for Biscuit-making

*In this article Belle de Graf treats a topic dear to the hearts (and stomachs) of us all. Piping hot biscuits—what would our meals be without them? Nor is Mrs. de Graf content to stop at biscuits proper. For she proceeds to show how versatile is the biscuit dough foundation at the hands of the ingenious housewife.*

Perhaps you have never stopped to consider the possibilities of the ordinary biscuit dough. This mixture lends itself to an infinite variety of good dishes.

It is quickly mixed and baked, and has the additional advantage of being one of the most inexpensive mixtures to make. Many very palatable sweets can be prepared from this dough, besides several varieties of bread.

Biscuits, scones, shortcakes, meat pie crust, fruit dumplings (steamed or baked), cinnamon or raisin rolls, cheese puff—there seems to be no limit to the number of things it is possible to prepare by using the biscuit dough foundation.

However, you must bear in mind that biscuit mixtures, to be at their best, should be served while fresh, generally direct from the oven. A heavy biscuit is usually due to inaccurate measurements and too slow an oven. This class of dough takes a hot oven; in fact, this applies to most all breakfast breads. Then, too, the amount of baking powder for the quantity of flour must be correct.

When sweet milk is used, always remember that two level teaspoonfuls of baking powder are used to each cup of sifted flour. This never changes, no matter how many cups of flour you are using.

If you use sour milk or buttermilk, soda will be your leavening agent. In that case remember that one-half teaspoon soda is used to each cup of sour milk. Or, you can use one-fourth teaspoon soda to neutralize the acidity of one cup of sour milk and one teaspoon of baking powder to each cup of flour.

And here's a closing word of caution: Never dissolve soda in the sour milk, as that process releases the gases too soon and the dough will be less light. Always sift the soda with the flour for biscuit doughs. Sour milk can be substituted for sweet milk in any recipe if these rules are followed.

## Sperry Baking Powder Biscuits

2 cups Sperry Drifted Snow Flour; 1 teaspoonful salt; 4 teaspoons baking powder; 2 tablespoons shortening; ¾ cup milk or equal parts of milk and water.

Mix and sift dry ingredients; work in shortening with knife or finger tips. Gradually add the liquid, mixing it with a knife to a soft dough. Toss on a floured board, pat or roll lightly to one-half inch in thickness, cut with biscuit cutter, place in pan, brush over the top with either melted shortening or milk. Bake in a hot oven twelve to fifteen minutes.

Belle de Graf

*Director Sperry Domestic Science Department*

CALIFORNIA STATE LIBRARY

# ORCHARD and FARM

TEN CENTS

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Offices: Los Angeles and San Francisco

AUGUST, 1921

## This Month

**INTERPLANTING FOR POLLINATION**
One of the most important articles Mr. Weldon has contributed.

**THE MAGIC FORMULA**
Albert Constant Jameson's new story will hold your interest and leave you thinking.

**LITTLE STORIES OF FARMING**
Human interest is the theme of "Bob Jones' Corner" in Orchard and Farm.

**THE VALLEY OF SURPRISE**
Visit it this month with O. H. Barnhill. His name is sufficient to insure an interesting, profitable journey.

MORE SUBSCRIBERS THAN ANY OTHER CALIFORNIA FARM PAPER

## Shopping by Mail or in Person From These Departments of Our Store

*Means satisfactory purchases—All merchandise guaranteed—and big savings—All these departments are represented in our new catalog—SEND COUPON.*

**MEN'S WEAR**
—Suits
—Overcoats
—Raincoats
—Shirts
—Breeches
—Trousers
—Sweaters
—Underwear
—Bath Robes
—Overalls (Basement)
—Handkerchiefs
—Ties
—Hats, Caps
—Gloves
—Belts, Cuff Links, etc.
—Garters
—Suspenders
—Puttees
—Bathing Suits

**WOMEN'S WEAR**
Second Floor.
—Outing Apparel 'Springtime' Suits, Breeches, Shirts, etc.
—Sports Skirts
—"Jack Tar" Outing Dresses
—Blouses
—Sweaters
—Street Frocks
—House Frocks
—Aprons
—Also Nurses' and Waitresses' Aprons
—Muslin Underwear
—Silk Underwear
—Knit Underwear
—Hosiery
—Silk Petticoats
—Kimonos
—Bath Robes
—Bathing Suits, Caps, etc.
—Smocks
—Middies
—Corsets
—Brassieres
—Vanity Bags, Purses—Second Floor.

Umbrellas—Main and Second Floor.

Ribbons—Second Floor.

Notions—Yard Goods—Table Linens, Towels, etc. — Second Floor.

Bedding — Second Floor.

Blankets, Comforters, Bed Spreads, Sheets, etc.

Auto Robes—Second

**GIRLS' AND MISSES' WEAR**
Second Floor.
—Dresses
—Regulation Middies
—Regulation Middy
—Skirts
—Sweaters
—Rompers
—Muslin Underwear
—Knit Underwear
—Stockings, Socks
—Bath Robes
—Bathing Suits
—Hats
—Hair Bows
—Raincoats

**BOYS' WEAR**
Second Floor.
—Suits (Boys' Balcony)
—Knickers
—Breeches
—Shirts and Blouses
—Hats, Caps
—Raincoats
—Athletic Underwear
—Knit Underwear
—Stockings
—Puttees (Main Floor)
—Overalls
—Playsuits
—Ties
—Wash Suits
—Bath Robes
—Bathing Suits

**SPORTING GOODS**
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—Tents, Tables, Cots, etc.
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Water Bags, 1-2-3 Gal., 95c, $1.45, $1.95.

Grub Coolers, special for campers, $2.45.

Luggage Racks, collapsible, $3.45 and $3.95.

Gold Medal Stools, $1.15, 95c.

Gold Medal Cots, No. 1, $7.25.

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—A fine quality material, tailored to our standard of "Springtime" garments. Suit consists of semi-fitted coat and breeches fitted at waist and knee, front lace, has plenty of pockets—a comfortable hiking suit and at this price every woman should have an outfit for outdoor wear, special price at $10.00.

**$10**

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—A HAT to match your khaki outfit—for everyday general wear.

### Boys Khaki Breeches

—Double seat and double knee, well made, good quality of khaki, special for good hard wear at $2.45.

**$2.45**

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**$2.95**

## Men's Sport and Work Shirts

Corded Madras Shirts.....$1.25
—You will find this a good quality madras, specially made shirt at $1.25.

"Old Faithful" Chambray Shirts, $1
—Triple stitched, pockets, etc.

"Big Yank" Shirts, like cut.....95c
—Good quality blue chambray.

Blue Chambray Work Shirt at...75c
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Roast Beef—1-lb., special 12c can; case 48 cans, $5.40.

Roast Beef—6-oz. cans, special 75c can; case 12 cans, $8.50.

Corned Beef—12-oz. cans, special 12c can; case 48 cans, $5.75.

Corned Beef—1-lb., special 15c can; case 48 cans, $7.10.

Corned Beef—24-oz., special 20c can; case 36 cans, $6.95.

Corned Beef—6-lb., special 90c can; case 12 cans, $10.50.

Corned Beef Hash—1-lb. can, special 10c; case 48 cans, $4.60.

Corned Beef Hash—2-lb. can, special 17c; case 24 cans, $3.85.

### Reclaimed and New ARMY GOODS

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—Reclaimed Khaki Coats—Special at 25c.
—Reclaimed Olive Drab Wool Shirts—Special at $1.25.
—Reclaimed O. D. Wool Breeches—Special at 95c, $1.25, $1.95.
—English Bayonets—Special at $1.00; sharpened, $1.50.
—Reclaimed Bed Sacks — Special at 95c.
—Reclaimed Canvas Puttees—Special at 10c.
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—Reclaimed McClelland Army Saddles—Special at $9.50.
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—Reclaimed (old style) Sailor Hats—Small sizes only, 10c.
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—Army Mattocks—Special at 95c.
—Reclaimed Army Tents—Size 16x16. Special at $25.
—Reclaimed Steel Cots—Special at $1.95.

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**$4.65**

Women's 12-inch Nap-a-Tan Moccasin Boots.....$9
Men's 12-in. Nap-a-Tan Moccasin Boots.....$10

**Boys' Army Shoes**
Sizes 2½ to 6; special,
**$2.75**

**Men's Dress Shoes**
Nunn & Bush, English last; special at
**$5.00**

**Women's Suede Pumps**
Sizes 3 to 7½; brown, gray and black, special
**$2.85**

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Sizes 5 to 8 $1.75
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OUR EDITORIAL POLICY

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# ORCHARD and FARM

ESTABLISHED 1889

Published Monthly by Country Life Publishing Company
1111 South Broadway, Los Angeles, California
"THE SILENT PARTNER OF THE SUCCESSFUL FARMER"

Entered as second class matter at the Post Office of Los Angeles, California, under act of Congress of March 3rd, 1879.

### SEASONABLE SUGGESTIONS

Fairs and livestock ehows are coming. Are your animals selected? Mowere still are loudly humming. Have the sickles been inspected? Time to catch the early moultere and to cull them with the roosters. Those are looking to the coulters who are early plowing boostere. To deetroy the peach tree borers it is well to knife or wire them. Time to rid the place of trash piles; it is just as well to fire them. Keep all the young stock growing by liberally feeding. And blame it on the summer moon if son is pinched for speeding.

## Pithy Paragraphs

Farmi[illegible]g may be a bed of roses, but th[illegible]re's l[illegible]ttle comfort in a blanket mort[illegible]g[illegible]ge.

Aside from all arguments about per[illegible]p[illegible]tual motion, we know a certain farm hand who has developed perpetual inertia

The word gentle-man may be interpreted literally. To possess superficial polish means little. To be gentle with children and animals means much.

The town bully carried a chip on his [illegible]houlder. But one little fellow whom he hectored aimed for his chin instead of the chip. The aim was good and the small man put "all he had" into one mighty blow. When the bully came to his senses he found this note [illegible]inned to his sleeve: "Ain't we surprised?"

Jas. C. Knollin

EDITOR.

### THE STATE FAIR

With premiums and purses totaling more than $100,000, the 1921 California State Fair, to be held at Sacramento, September 3 to 11, promises to eclipse all previous events.

It is believed that the offering of larger premiums will aid materially in bringing out the best livestock to be found, while several new classes have been incorporated in the various sections.

The milk-goat entries have been re-classified, and other departments improved. There will be several novel features this year, including a sheep-shearing contest, sheep dog trials, students' judging contest and a great draft-horse show.

Secretary Payne, Sacramento, will furnish copies of the premium lists upon application.

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## Alphabetically Arranged List of Advertisements

IS there anything new under the sun? This is the question that is troubling some of the newer fruit-marketing organizations. We have "Sunkist," "Sun Maid" and "Sun Sweet" brands.

"Now what is there left for us?" asks one of the organizers of a new marketing association. Without going deeply into the matter, ORCHARD and FARM respectfully suggests "Sun Scald." But if this should not appeal, perhaps he could adopt the term "Moonshine," now that the country is legislatively, if not actually, dry.

The Oregon growers, however, in seeking names for their products, did not attempt to follow the lead of their California contemporaries. They have chosen the terms "Mistland" and "Truwest," both of which are distinctive and typical.

In advertising great value is attached to trade marks and slogans. So important, in fact, have these become that no man can be called well educated who is not familiar with the words and phrases constantly used in advertising.

The individual who scorned to read "ads" would be quite "lost" in almost any discussion among up-to-date business men. They would speak familiarly of things utterly strange to him. If you would possess wide knowledge and breadth of mind, you must read advertisements as religiously as articles and stories.

If you question the truth of this assertion simply glance through the questions below. They form an index to a mine of useful information. You do not make the most complete use of ORCHARD and FARM unless you seek and find each month the answers to this questionnaire in the advertising columns of the pages listed.

### TRACTORS, TRUCKS, AUTOMOBILES, EQUIPMENT, REPAIRS—

**A Bicycle**—How can boys and girls get one free?.......... 15
**Automobile Book**—Who sends free auto instruction book?.......... 16
**Gasoline**—What is the eignificance of "boiling points"?.......... 27
**Tires**—Can I buy a standard non-skid tire for less than $14?.......... 33
**Tractors**—Ie there now assurance of eatisfaction in buying a emall tractor?.......... 13
**Trailers**—Does it pay to transport merchandiee with a car?.......... 19

### IMPLEMENTS, MACHINERY, FARM ENGINEERING, IRRIGATION—

**Cider Mills**—Where can I get information concerning mills and fruit-presses?.......... 27
**Corn Harvester**—Is it possible to get a self-gathering corn harvester for less than $30? 21
**Engines**—Can I secure immediate shipment on engines?.......... 18
**Engine**—Where can I get a gas engine for less than $40..........19, 26
**Harness, Hardware**—How can I save money on hardware, harness and farm eupplies? 35
**Oil, Lubricating**—What is the most important factor in engine lubrication?.......... 23
**Pipe, Irrigation**—What is the locked-seam as applied to surface pipe?.......... 18
**Pipe**—Where can I secure guaranteed used pipe at low prices?.......... 17
**Pipe**—Where can I purchase durable surface irrigation pipe?.......... 33
**Pistons**—How can I prevent oil-pumping and fouling?.......... 9
**Pumps**—Has the stuffing-box problem been solved?.......... 27
**Pumps**—Who will help me solve my irrigation or pump problem?.......... 21
**Roofing Paint**—Is good roof paint necessarily costly?.......... 18
**Roof Preservative**—How can I successfully protect shingle roofs and lengthen the life of my buildings?.......... 25
**Saw, Log**—What type cuts over 300 strokes a minute?.......... 19
**Saws, Log**—How can I saw my wood free of charge for thirty days?.......... 16
**Saws, Log**—What easy payment plan is offered?.......... 33
**Silos**—What price reduction has been made on silos?.......... 24
**Tanks**—What type is recommended for a permanent water supply?.......... 26
**Well Boring Outfit**—How will one pay for itself?.......... 33

### NURSERY STOCK, SEEDS, ORCHARD EQUIPMENT, FERTILIZERS—

**Fruit Distributing Organization**—How can I efficiently and eafely dispose of my fruit? 22
**Lime, Agricultural**—What is the effect of decompoeed lime upon the cover crop?.......... 23
**Rhodes Grass**—Under what conditions will it grow successfully on alkali land?.......... 22
**Spreader for Sprays**—What process makes it possible to spread spray evenly and quickly?.......... 14
**Trees**—Is nursery etock cheaper?.......... 9
**Trees, Fruit**—What ie the advantage of location in producing nursery stock?.......... 20

### FOOD, CLOTHING, HOUSEHOLD EQUIPMENT, MUSIC—

**Cake Making**—How can I be sure of a fine-grained, light cake?.......... 36
**Groceries**—Who eells supplies at low prices by mail?.......... 26
**Lamps**—How can I have better light from my old lamp?.......... 21
**Merchandise, Clothing**—Where can I get a new fall catalog free?.......... 11
**Outing Apparel, Supplies**—Where can I eecure outing supplies of all kinds at reasonable prices?.......... 2
**Soap Chips**—How can borax be used in conjunction with soap?.......... 18
**Beverage**—How can I make a delicioue beverage at home?.......... 18

### LIVESTOCK, FEEDS, DAIRY AND BARN EQUIPMENT, ETC.—

**Cattle Feed**—How should linseed oil cake meal be used in the ration?.......... 13
**Eye Remedy, Animals**—Is there a painless remedy for eye disorders?.......... 21
**Feeds**—On what basis may feeds be judged?.......... 27
**Dogs**—What book on the care and feeding of dogs is sent free?.......... 33
**Molasses**—How can I convert cheap roughage at low cost into profitable stock food? 20

### POULTRY AND PET STOCK—

**Guinea Pigs**—Can I realize a substantial income from the raising of guinea pigs?... 33
**Poultry Book**—Where can I secure information on poultry raising and marketing?... 16
**Poultry Pest Powder**—What kind is designed to destroy all mites and lice?.......... 19
**Poultry**—Where can I secure at reasonable prices, high pedigreed cockerels and hens? 24
**Poultry Feed**—What is a good way to judge the value of a mash?.......... 31

### MISCELLANEOUS; MEDICAL—

**Aid to Beauty**—What fruit-food promotes beauty?.......... 29
**Bees**—Where can I secure catalog of beekeeper'e supplies and book of information free? 13
**Building Material**—How can I save money on my building material?.......... 17
**Cigarettes**—Can I get a cigarette free from disagreeable aftertaste?.......... 16
**Cigarettes**—Can I get a mild, yet satisfying, cigarette?.......... 22
**Farm Lands**—Where is it poesible to purchaee good farm lands on easy payment terms?.......... 14
**Gopher Eradicator**—What method eliminates traps?.......... 33
**Help Wanted**—Who offers employment to women?.......... 26
**Medical Treatment**—Who sends free book on painlees treatment for diseased growths? 17
**Plumbing, Roofing**—Where can I get good used building materials?.......... 18
**Radium**—How may I use it to treat disease?.......... 22
**Ranch Property**—Where can I buy choice fruit land at auction?..........34
**Rheumatism**—What home treatment is offered free upon request?.......... 21
**Rheumatism**—Who sends free information regarding a cure?.......... 21
**San Fernando Valley Fair**—What cash prizes are offered?.......... 24
**Taxidermy**—Where can I dispose of furs at good market prices?.......... 14
**Tobacco**—Is there a tobacco free from bite and parch?.......... 17

## Between Ourselves

"To bee or not to bee" is a question easily answered with the assistance of W. B. Dickerson. The second article by this authority on honey-production will appear in the September number.

"Tie the orchard to the cow." At first glance, this sounds like putting the cart before the horse. But Robert E. Jones, Contributing Editor of ORCHARD and FARM, develops a very important lesson around this true story of an orchard innovation. Watch for this valuable feature.

Just to read E. J. White's articles on Alaska, and to view the beautiful photographs with which they are illustrated, is to feel the magnetic attraction of this wonderland. How would you like to spend a vacation in the Far North during these torrid days? The next best thing is to read about it; actually makes one feel cooler! Try it next month and see.

### CONCERNING "SWAPS"

Every real farmer is a born trader. Perhaps that is why the Farmers' Classified Market Place is such a popular feature of ORCHARD and FARM. A number of especially interesting new announcements appear this month. Don't fail to read these "ads"—small in size, but large in opportunity. Pages 30 and 31.

### "ONE GOOD TURN—"

Your friend or neighbor (may they be one and the same) would appreciate having your copy of ORCHARD and FARM when you have finished with it. Or, if you are keeping a file, send us the names of those who are not subscribers, and we will gladly mail them sample copies. Let us not keep a good thing to ourselves.

### JUMPED AT CONCLUSIONS

*The "Boss" (issuing his morning orders)—"John, I want you to take a header into the barley field today."*

*The "Green Hand"—"Sorry, sir, but I took one into a rock pile yesterday, and I positively refuse to ride that mule again."*

Probably it did not occur to John that there might be more than one kind of a "header." The rock pile had made a deep impreesion on him. Others are more affected by mental impressions, such as those gained from reading. The reader's impression of ORCHARD and FARM is the publisher's best asset, for ORCHARD and FARM thrives on comparisons. If you are impressed with ORCHARD and FARM'S pleasing personality, kindly tell your neighbor about it, or, better still, lend him your copy as an introduction.

### A Creed in Twelve Chapters

(8) Right Effort.—The greatest highroad of human welfare lies along the old highway of steadfast well-doing; and they who are the most persistent and work in the truest spirit will invariably be the most successful; success treads on the heels of every right effort.—Smiles.

ORCHARD and FARM

VOL. XXXIII. AUGUST, 1921 NO. 8

# How I Beat the Game at Sixty

*HERE is the true, personal story of a Californian who "came back." At 60, he was "broke" but not broken; disillusioned, but not discouraged; old in body, but youthful in spirit. He wouldn't go down and he wouldn't give up. He started at the bottom and came out on top. And he wrested his home from the soil.—The Editor.*

By Wallace Banks

THE exact manner in which it happened that I was a down-and-outer at 60 does not matter for the purpose of my story.

Suffice it to say that I never was a money maker and that the ten thousand I had saved at that age had come slowly and only through hard work and frugality.

I had followed various occupations in the city, engaged in different kinds of business in a small way, and had got along. I had never been in jail; had voted the straight party ticket and was chairman of the Improvement Club of my community.

I had shaped my affairs to the end that at 60 I should not have to work so hard. But I trusted the wrong person at the wrong time.

True, in my small business enterprises I had found it necessary to trust people, and had found humanity on the whole inclined to play fair.

But within six months after my fatal misjudgment, my few personal belongings were loaded on a motor truck and headed towards the water front, while I bidding farewell to the home in which I had put so much toil and effort and wherein I had hoped to spend my days in comfort, followed on the street car. Carefully concealed about my person was the sum of $300, which Shylock didn't happen to know about, or doubtless he would have taken that, too.

A HUNDRED miles away in a quiet, isolated farming region I had a nephew. Knowing of my disaster he had said, "Come along, Uncle; plenty of room up on the farm," and not being able to think of anything better just then I went. Now I had never farmed, but I had grown up on a farm as a boy, at a time when there were 365 working days every year; when on the daily program were no movies or joy rides, and when one must have been born in the optimistic month of October to find the slightest trace of romance in the whole round of drudgery. Of course I hated it then; what boy didn't? And as soon as I was old enough to leave I made a "bee-line" for the city.

But on the farm where I now went, things were quite different. The joyful honk of the auto was heard in the land. And the rural people knew how to live as well as work.

I "fussed around" my nephew's farm, making myself useful, and developed a strong liking for the work. I never knew there was so much joy out in the open. It seemed that one could live forever, filling his lungs with the fresh morning air, and to dig around in the ground and just watch things grow and finally bring forth the harvest, was more fun than anything the city could produce in a lifetime.

But I wasn't satisfied. Just to drift along with the tide was a new and most disagreeable experience to me. The sense of failure hung heavily upon me. I was a down-and-outer. I knew I was. I felt that everybody else knew it, too. I had my $300 still, but what was $300—what could one do with so little? And how to add to it was the question. My health had been shattered a bit by my misfortunes. I had lost my grip. I was 60 and past the age limit for remunerative employment.

Now, I longed for a bit of land of my own, but land in small acreage was scarce in this neighborhood. People owned farms here; dairy farms, stock farms. One hundred acres was little enough. There were practically no small acreages and when I timidly mentioned the matter of a few acres once or twice I could tell by the expression on people's faces that they wanted to say, "The old man's going fast," and that scared me worse than anything. Perhaps I was going—going down to defeat, and others knew it better than I. In my dreams, however, I still saw before me a bit of land all my own—and independence.

Across the road from my nephew's farm was a property that cornered at the edge of a creek bottom, and just here was nearly two acres of ground which, since the year one, had been covered with a dense growth of alder trees, willows, wild berry briars, nettles and skunk-cabbage.

IT was wet and swampy too, with a living spring at the higher portion. I asked the owner one day why he didn't clear it off, and he answered it wasn't worth the effort. It was wet, he said. One never could get a team on it to plow and were it cleared and cultivated the water from the spring during a rainy spell would come down in a flood and carry the whole place over the high bank and into the creek bed below.

I looked carefully about to see that no one was within ear-shot and then almost in a whisper, I asked if he would sell this bit of land. I'll never forget the look that came over his face. "Who would buy it?" he gasped.

A week later the farmer had one-third of my wealth in his pocket and I had a deed to "All that certain parcel"—you know how it reads, "consisting of two acres of land, be the same more or less."

THE deed called for land, and I supposed there was land underlying this aggregation of brush and jungle, though no one ever yet had got a glimpse of anything like solid ground.

I could guess something of what was said about the neighborhood when it was learned of the real estate deal that had taken place in their midst. The others didn't say it to me, however, nor did they ask me as to my intentions regarding my two-acre farm. But I did have plans carefully concealed, and the first thing on the program was to get rid of the brush and jungle, grub the roots and confine the overflow from the spring into a drain, thus preventing the soil from being washed away; at the same time furnishing a means of irrigation to some parts of the ground during the driest season.

It was early spring time when I made the purchase, and no ambitious pioneer ever worked harder in a new land than did I in the months that followed. Every available moment from daylight until dark was put in to remove the brush and the roots that had supported it down the centuries. There was land underneath, I found; good, rich, alluvial soil, too, and just the thing for my purpose.

Throughout the summer, a steady column of smoke rose skyward. Brush, tree trunks and roots gradually were destroyed until but a small portion of the tract remained unprepared for the plow. It was all on a gentle slope, easy to drain down to the creek bank, and the clearing of brush, the exposure to the wind and sunshine, and the root-grubbing process, all tended to remove the surplus moisture from the soil.

By early fall a team could plow and cultivate the greater part of that which I had cleared, until the ground was in as good condition as I thought necessary for my purpose. By this time the neighbors had begun to take notice of some change in the landscape and several came and gave the ground careful inspection. Of course they wanted to know the ultimate purpose of all this effort but as they never asked outright, I never told. As a matter of fact I was in a state of fear and trembling and some uncertainty myself; that is, uncertainty as to the final results.

I SHOULD state that this neighborhood was somewhat peculiarly situated. Only a few miles to the west the white waves of the Pacific washed upon the sandy shore. The nearest railroad point, however, was 40 miles distant, the nearest large city, 100 miles.

A little "dinky" coasting steamer hit a shipping point seven miles away at uncertain and irregular intervals. Five miles to the south was a town of 1000 inhabitants, while ten miles to the north was another, a lumbering town, of about the same size; while in my immediate vicinity was a store and post office and a prosperous farming settlement. Mail and passengers came and departed by the daily auto stage.

As I've said, there were no small acreages here; any man owning an acre or two of ground only, adjacent to his home, was looked upon with pity; it was too much for a home and not enough for anything else.

Meanwhile, fruit, berries and even vegetables, were either shipped in or brought over the mountains by motor truck from the valley 50 miles away, and sold at almost fabulous prices.

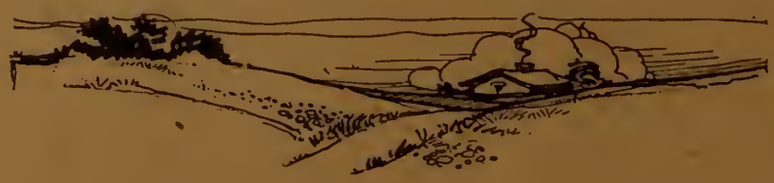
Now it had occurred to me long before that the production of these necessities right at home would be a profitable industry. People here had money and lived well. I had thought of Belgian hares, poultry, fruit and other things, but finally had settled upon berry growing. Results would come sooner, and my small patch of ground would be quite big enough. More important still, the initial cost would not be beyond my small means.

I SAY I had approached this enterprise with fear and trembling; I know that I was a coward; I felt that I had lost my grip—my self-confidence. I knew that I had a home for life and I could fuss around and make myself useful on my nephew's farm with my little $300 intact for emergencies but to be looked upon as one out of the running—a has-been, and feel, myself that I was one, was unendurable. I liked books, study and to a reasonable degree, the refinements of life; but above all, independence.

I had kept my plans carefully concealed. Having once decided upon my course, I wished none of the gratuitous advice usually given under the circumstances, and I had a latent fear that I might be run down, caught and carted off to the nearest asylum before I had time to demonstrate that someone and not myself should go there.

Rains came a bit early that fall, fortunately for me, and [illegible]

(Continued on Page 23)



## Over the Hill

*By Jason Wells*

*THE dusty road leads over the hill,*
*Its burden to release—*
*Into the Valley, where all is still.*
*Over the hill lies Peace.*

*OVER the hill are the dreams of Youth*
*And the joys that Age has lost—*
*Lingering there in the Valley of Truth,*
*After the hill is crossed.*

*THEN weary miles that lie behind,*
*Fade with the misty past—*
*And sweet is the rest of hearts that find*
*Their haven of love, at last.*

*THE dusty road leads over the hill,*
*Its burden to release—*
*Into the Valley, where all is still.*
*Over the hill lies Peace.*

(Written for Orchard and Farm. Copyright)

# Every Farmer His Own Photographer

If you would sell your pure-bred stock,
And increase your gains by half,
Enclose with your description
A well-made photograph.

"MY CAMERA is one of my best business getters." This is the assertion of one of California's successful "mail-order" live stock breeders. "When I have almost worked up a sale," he adds, "and need just one more little 'persuader' to close the deal, I pose the animal in question in as natural a manner as

*First Prize*

possible and send the picture to the prospective buyer. Nine times out of ten this is sufficient to convince the hesitating one."

The importance of the camera both for business and pleasure no longer is questioned by progressive farmers. It was in recognition of this fact that ORCHARD and FARM co-operated with the University of California in offering cash prizes to the winners in a recent students' photo contest.

CAMERA CLUB SUCCESSFUL

The excellent results secured by these young men are indicated by the accompanying illustrations. So successful has been the photographic work at the university that, according to Professor Tavernetti, who has had charge of it, the Camera Club bids fair to become a fixture at the Davis Farm.

The negatives were developed and the prints made by the students themselves. Accurate records as to exposure and atmospheric conditions were kept. The contest thus had much educational value in addition to arousing the greatest interest among those who took part.

Many excellent photographs other than those which were awarded the first three prizes were sent to ORCHARD and FARM, but lack of space made it impossible to publish them with this article. The large number of animal pictures received is especially significant when it is considered that animal photography requires great skill. Only in rare instances can a front or three-quarter view be taken without making parts of the animal appear out of proportion. A front view usually gives the impression of a grotesquely large head with a strangely dwindling body.

A straight side view, on the other hand, sometimes results in loss of character and detail. It will be noticed that all three of the winning photographs were taken at a slight angle, yet showing almost the full side of the animal. They were especially commendable for publication because of their clearness. The test of a photograph for reproduction is in reducing the size. The reader will observe that these pictures stood the "one-column reduction" very well.

Important as is the camera to the live stock man, it is no less valuable in other ways. For example, many a farm has been sold by means of good, clear illustrations.

CAMERA MAKES MONEY

In taking pictures for sale, also, the farmer can capitalize his kodak. Many a farmer's camera has been paid for with pictures sent to agricultural magazines and other publications. Editors as a rule are glad to [illegible] pictures as those published on Page 8 of this number of ORCHARD and FARM, which convey [illegible] practical suggestions.

[illegible] too, have taken [illegible] much of the uncertainty and drudgery. The busy farmer as a rule does not care to develop and print his own pictures, but he can secure quick and satisfactory

*Second Prize*

service by mail, simply sending the rolls or packs of films to a photographer who makes a business of amateur work, the cost being inconsiderable.

Last but not least is the sentiment connected with photographs of people and things that enter into our everyday lives. Nothing is more treasured than the album of home and home folks. Mother treasures the "snapshot" of little Johnnie before he lost his curls. Sister reviews happy parties of young folks through the camera's eye. Father finds great satisfaction in looking at prints of the farm and farm buildings made in the days when he was struggling to make his start, comparing them with the latest photographs showing what has been accomplished during his lifetime.

*Third Prize*

So it goes. The entire family derives untold pleasure from the ownership of a good camera.

Following completion of the students' contest, ORCHARD and FARM requested the first prize winner, Mr. Waldemar E. Doyal, to write an article about his experiences and methods. In the following brief essay Mr. Doyal tells "how he did it."

ORCHARD and FARM has mailed checks to the winners with our compliments. It has been a pleasure to encourage this good work and no doubt the contest will result in greatly increased interest in camera-craft. We shall be glad to advise with any of our readers who desire information about cameras and photography.—The Editor.

## Orchard and Farm Gives Prizes

### PHOTO CONTEST WINNERS

| NAME | REPRODUCTION 50% | COMPOSITION 25% | SUBJECT 25% | TOTAL 100% | PRIZE |
|---|---|---|---|---|---|
| 1—Waldemar E. Doyal..... | 45 | 25 | 20 | 90 | $10.00 |
| 2—Herman M. Wise..... | 45 | 20 | 20 | 85 | 5.00 |
| 3—George H. Hoppe ..... | 40 | 20 | 20 | 80 | 2.50 |
| 4—George H. Hoppe ..... | 45 | 10 | 20 | 75 | HONORABLE |
| "—Merton I. Slater ..... | 40 | 15 | 20 | 75 | MENTION |
| 5—Waldemar E. Doyal ... | 40 | 20 | 10 | 70 | " |
| "—Herman M. Wise..... | 30 | 20 | 20 | 70 | " |
| "—Orrin G. Fitts ..... | 40 | 10 | 20 | 70 | " |
| 6—Herman M. Wise ..... | 30 | 20 | 15 | 65 | " |
| 7—Elra G. N. Garrison... | 25 | 20 | 15 | 60 | " |

*For the Committee: (Signed) WARREN P. TUFTS*

## How I Use My Camera

BY WALDEMAR E. DOYAL
(Winner of Orchard and Farm First Prize)

MY INTEREST in photography first began in 1908 while I was attending grammar school. This was my graduating year and as I wanted some pictures of members of my class I bought a Brownie 2A box camera. The agent who sold me the camera was kind enough to allow me to visit his developing room several times in order to study developing and printing. This led to my doing all of my own work from the start, which, although not essential, makes photography far more interesting. I used this camera with varying success for years and still have it.

My next camera was of the "Vest Pocket" type. I bought this to carry upon trips and when I left for "overseas" with the army, took it along. I secured many interesting pictures with it on the way over and while first there, but unfortunately the

(Continued on Page 25)

*The University Farm Camera Club—Upper row, left to right— T. Ballou, E. W. Weston, H. Wise, K. C. Hardy, H. Latimer. Front row, left to right—S. M. Poulsen, G. H. Hoppe, A. M. Woodman, W. E. Doyal, C. Bruck. These are the young men who took part in the Orchard and Farm photo contest.*

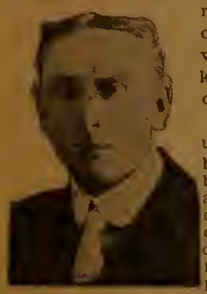
# Cross Pollination—It Is Solving the Problem of the Shy-Bearing Fruit Tree

*THEORY and practice, successfully blended, lead to great attainments. This discussion deals with a theory—but in terms of facts and real orchards. Probably, although brief, it is the most important article Mr. Weldon ever has written for ORCHARD and FARM.—Ed.*

By George P. Weldon

CONTRIBUTING HORTICUTURAL EDITOR OF ORCHARD AND FARM

FEW horticultural experiments in recent years have had more practical value than those conducted by the Department of Pomology, University of California, to determine the need for cross pollination with different kinds and varieties of fruits.



George P. Weldon

Exceedingly valuable bulletins have been written by W. P. Tufts and A. H. Hendrickson in which conclusive evidence is given that few varieties of pears, plums and almonds are "self-fertile." Inter-planting, therefore, becomes a necessity. (These bulletins may be obtained upon application, from the Director, Agricultural Experiment Station, Berkeley.—Ed.)

The work of determining which varieties are inter-fertile, so that the tree planter may choose with intelligence when making a selection for his orchard, is not easy. Conditions of soil and climate are so variable that a variety which is highly self-fertile in one locality may prove worthless in another, without a pollenizer. Therefore it becomes necessary to make observations under different conditions where fruits are grown so that accurate information on this point may be secured.

The work of Tufts and Hendrickson serves as a basis for accurate and reliable data; yet it must not be concluded that under all conditions exactly the same results will be attained as in their experiments.

Some have questioned the importance of pollination. But, field observations have been made which should convince the most skeptical person, that certain varieties receive the benefit of the pollen from other varieties planted close by.

### THREE YEARS' OBSERVATIONS

The writer for three years consecutively has noted the effect of the pollen of the Wickson variety of plum on the setting of fruit of the Kelsey variety. During the seasons 1919 and 1920, studies were made in a 30-acre Kelsey orchard near Pomona which had growing in different parts, three trees of the Wickson variety.

During both seasons the trees of the Kelsey variety bore rather light crops except in the vicinity of the Wickson trees, where it was estimated that at least three times as much fruit was developed. The effect of the Wickson pollen was noticeable for about five rows away to the southwest, and a lesser distance or about two or three rows in the opposite direction.

This fact could be accounted for only by the direction of the prevailing winds during the blooming period, which were from the northeast. The only props used in the orchard in 1920 were placed near a large Wickson tree, where heavy breakage would have resulted had they not been used.

*Heavy setting of Kelsey plums (on formerly shy-bearing trees) resulting from pollination with Wickson grafts blooming this year for first time*

## Pollination by Grafting

THE striking demonstration of the value of Wickson plum as a Kelsey pollenizer induced the owner of the orchard to make an attempt (in which he was very successful) to introduce the Wickson variety by budding into every fifth tree in every row of Kelsey in the orchard.

The grafting method was used, the scions of the Wickson variety being put into the Kelsey trees in April, 1920. Just one year later the growth from these grafts bloomed profusely and set a number of fruits on many of the trees. Now it is possible, in walking through the orchard, to pick out every tree, almost without exception, which has in it a Wickson graft, bearing fruit. One is enabled to do this simply by the tremendous crop of fruit carried by these trees.

An exceedingly interesting fact in connection with observations in this orchard is the purely local effect of the grafts this season. Possibly this is due to the fact that the Wickson twigs were too small to bear much bloom. At any rate, a tree in which they are growing may carry a load of fruit so great that heavy thinning is necessary, while the next tree in the row may bear little, if any, more fruit than the average. It is also noticeable that the heaviest portion of the Kelsey crop is close to the Wickson twig.

Every nurseryman who fails to recognize the importance of cross pollination when selling trees to a customer should see this demonstration. Furthermore, every planter who discredits the work of our scientists, who are getting data from a purely scientific standpoint, and who buys trees without any thought of the value of cross pollination, should see this demonstration. Again, it would strengthen very materially the faith of each in the men who are laboring to get at the facts.

Cross pollination benefit is not a theoretical thing, but an absolute fact. It is possible, under certain conditions at least, to grow some kinds of fruits when they can be fertilized only by their own pollen, but under other conditions absolute failure may result. The safest rule, therefore, in choosing varieties for planting is to select more than one, basing the selection on the best available information regarding inter-fertile sorts.

## Watch Soil Moisture—The Orchard "Barometer"

THE average fruit grower does not make accurate enough determinations of soil moisture.

In some counties the soil moisture problem is receiving much attention within the ranks of the farm bureau members. This is a splendid work, which undoubtedly will result in more intelligent application of water.

No scientifically accurate data are necessary in order to determine the irrigation needs of an orchard. Dry trees exhibit symptoms that easily are recognized, but if irrigation is delayed until these symptoms (wilting and more or less discoloration of the foliage) are evidenced, possibly it will be too late to enable the trees to mature a good crop of fruit.

Instead of letting the tree tell of its needs, watch the soil carefully. Not every fruit grower has a soil augur. But if he is fortunate enough to possess one he may use it to determine the condition of the soil moisture. Even better than the soil augur is an ordinary shovel with which a big enough hole can be made in short order, plainly to disclose the moisture condition.

It is a common mistake to depend entirely upon examinations of the first few in hes of soil as a guide to water applications.

The roots of most of our fruit trees feed principally at a depth of from one to four feet, and it is just as important to have moisture three or four feet below, as closer to, the surface. Irrigation, according to a schedule arranged by a water company, perhaps, is not always best. The time to irrigate is when the soil needs the water. The schedule may be altogether wrong and the only safe way to determine the needs of the soil is by boring or digging.

Every grower should get in the habit of examining the soil carefully at frequent intervals, so that his trees may be made to do their very best. —G. P. W.

## Provide Pollenizers Now

THOSE who have certain varieties of plums, pears, apricots or other fruits growing by themselves may summer bud or fall bud portions of certain trees to some good variety for pollination. If the work can be more conveniently done in the spring, however there is no objection to putting it off until that time. In one or two years the benefit will be derived and an unprofitable orchard may thus be made a valuable property.

While other factors besides pollenation enter into the question of fruit setting, there is none more important. Future studies may show that olives, apricots, peaches and many other fruits which have received little or no attention as to inter-planting of varieties, will be benefited by the practice. In order to be on the safe side, no one planting fruit trees should take chances on large, solid blocks of any variety of deciduous fruits.

## Larger Sized Fruits

IS THE tendency at present to underestimate the value of larger sizes in fruits? Recently an apple grower, in talking about prices he received for his last season's crop, stated that a carload of his Rome Beauties which sold on the New York market on a certain day brought $5.25 per box for part of the car and $3.75 per box for the remainder.

The only difference between the apples in the two lots was in the size. Those that sold for $5.25 packed 80 to the box, while those which sold for $3.75 packed 96.

This difference of $1.50 per box indicates that perhaps we are placing too little stress, nowadays, on the necessity for securing large sizes.

At one time in the history of the fruit business much emphasis was placed on size. The larger apple, peach or pear was given preference over the small at all fairs and exhibitions. Now the idea of displaying large fruit is discouraged and many an exhibitor fails to secure a premium because the judges consider that his fruit is over-size.

### THE TRUE SITUATION

There is no doubt that fruit may become so large that quality is impaired. On the other hand, the smaller sizes often do not pay for the picking. Is there not more danger in the fruit being too small than too large in the average orchard? The prize winner who thins the heaviest is usually the fellow who gets the returns. The apple grower who has learned how to thin is also the man who is thinning a good market for his fruit.

Consumers haven't yet departed from the old idea that size is desirable, no matter what the trade likes to handle, the consumer prizes the large fruit. And, after all, his likes or dislikes govern prices.—G. P. W.

# PRACTICAL POINTERS IN FEW WORDS FOR BUSY FARMERS.

**Preserving Wood in Farm Structures**—Wood preservation on the farm is recommended as the most necessary immediate step towards timber conservation. Over 40 per cent of the lumber used annually in the United States is employed in farm construction, according to a recent technical report. It is suggested that all timbers placed on the ground or in contact with masonry, as well as all stringers, joists and braces, be creosoted at points of contact. Hog and chicken house floors should be treated, both to prevent decay and to create more sanitary conditions. There are many "fly-by-night" wood-preserving compounds on the market. In order to be sure of obtaining creosote oils or compounds of the proper specifications, it is suggested that samples be submitted to, or advice secured from, the State Agricultural College Laboratory.

**More About Milking Machines**—Last month we published the testimonial of a dairyman who has made good with mechanical milkers. Equally interesting is the report of A. W. Ward, owner of a large dairy, who states that with modern machine equipment he (with a helper) milked, stripped and carried away milk from ninety-seven cows in less than three hours. How long would it take you and a helper to milk ninety-seven cows by hand? One of the latest developments in mechanical milkers is a small portable electric unit selling for less than $200 and designed for attachment to the electric light socket in the milking barn. It is operated by a one-sixth horsepower motor and may be managed by a 12-year-old boy, according to the manufacturers.

**Mineral Matter for Cows**—Investigations carried on at one of the Government dairy experiment farms emphasized the value of mineral matter in the dairy ration. An insufficiency of calcium or phosphorous, or both, resulted in decreased milk yield. Good results followed the addition of these elements in the form of inorganic salts. Bone-building elements can be supplied also, however, by feeding more liberally of the regular ration. This especially is recommended for cows about to freshen, the greatly increased milk flow more than paying additional cost of the feed. As a result of these experiments, dairymen are displaying much interest in feeds and remedies high in mineral content, and the addition of purely mineral constituents to the regular feed is becoming more general. Some owners, in fact, now believe this factor to be as important in dairying as in hog raising.

**Good Feed From Cheap Roughage**—Here is a hint that is timely for stockmen and dairy owners who are trying to reduce production costs: By spreading cane molasses upon cheap roughage, such as straw, it is possible to make an appetizing mixture that at the same time has much food value. The molasses itself is rich in carbohydrates, and its flavor adds a relish to otherwise inacceptable feeds. Have you tried this economical method?—A. J. M.

**Melons as Intercrop**—So successful has been the experiment of raising cantaloupes and watermelons between young grape vines in the San Joaquin Valley that it is predicted between two and three thousand acres will be planted in this way next season in the Delano district alone. This district is said to follow immediately Imperial Valley and to ship melons well ahead of Turlock. Twenty acres of watermelons near Delano are said to have produced [illegible] worth of watermelons this year.

**More About Yellow Sweet Clover**—[illegible] the yellow blossom sweet clover (Melilotus Officinalis) mentioned on this page in the July number, [illegible] writes: "I sow four pounds per acre for a seed crop and [illegible] pounds for pasture [illegible] grown for seed it reaches a height of five to seven feet, producing 300 to 700 pounds per acre. I have raised it at 7500 feet elevation. It will grow under most adverse conditions, even in the presence of alkali. It will not bloat cattle if care is taken not to turn hungry animals in on a heavy, wet growth. Cattle eat it readily, as do hogs, but horses first must acquire a taste for it. It does not give an offensive taste to milk and will produce more milk than anything else I have ever fed my cows. It is hard to cure for hay an account of the heavy stems, but when cured is relished by all stock. It is not as stemmy as the white sweet clover, but it not quite as good for turning under, because it does not grow so rank. As bee pasture it blossoms a month earlier and continues to blossom until killing frost in the fall, but does not give as clear honey as the white clover. This plant appears to have a great future in sections where peas, alfalfa and vetch do not make a sure crop."

**A New Poultry Breed**—As a result of interesting experiments conducted by the United States Department of Agriculture, a new white fowl has been developed which has red ear lobes and lays white shelled eggs. Heretofore, it is said, all breeds with red ear lobes have laid brown shelled or tinted eggs. The new bird is larger than the leghorn, white in color and a good winter layer. It represents a mixture of blood of the white Plymouth Rock and the silver gray Dorking. Careful selection and thoughtful breeding since 1912 have produced this interesting new breed, named "Lamona."

**Rough Grit for Fowls**—Investigators assert the gizzard of the fowl expels grit which has become smooth and rounded. This indicates the necessity of keeping rough, sharp grit before the birds at all times. The hard, irregular grit aids the grinding and crushing process which prepares the food for assimilation.

**August Poultry Suggestions**—If the henhouse has earthen floors, why not sprinkle it in hot weather? Food spoils quickly on hot days. Don't leave grain or mash around to sour and grow musty. One successful poultryman uses shavings from a planing mill as nesting material during hot weather, stating they are cooler and cleaner than hay or straw. A study of chicks on fresh range shows that they eat large quantities of green stuff, bugs and worms, with small amounts of grain. The poultryman thus can take a lesson from nature on feeding the youngsters.

**Helpful Haying Hints**—The operator of a large alfalfa ranch asserts it does not pay to wait until the dew is off before starting the mowers. He uses a tedder to "kick" the water out of the hay. The time of day when the mower is started has an important bearing on the amount of hay made per day, and number of men required, especially on farms where it is the custom to haul or stack in the afternoon only. The more work done in the latter part of the day, the more men and equipment will be required. Economy also is attained by using larger machines. Under average conditions a five-foot mower will cut ten acres in ten hours; a six-foot mower, 12 acres; a seven-foot mower, fourteen acres, and an eight-foot mower, sixteen acres in ten hours. But it should be borne in mind that more power is required for wider cuts. The successful grower above mentioned uses an eight-foot machine and mows early in the morning before the dew is off or even during a light rain, if necessary. Efficient methods of putting up hay are demanded when prices are comparatively low and expenses still high, as at present.

**Army Goods Sold to Farmers**—Uncle Sam, in disposing of his surplus army supplies, such as harness, saddles, clothing, blankets and hundreds of other articles of equipment, has created unusual opportunities for farmer-buyers to obtain new articles at much less than the usual cost. Certain merchants make a specialty of these goods, which were bought at very low prices from the Government. It will pay any subscriber to investigate this matter. Interesting announcements concerning "ex-army" bargains will be found in this number of ORCHARD and FARM.

**Control of Red Spider**—The hot, dry weather of July has caused rapid development of the red spider in fields and orchards. Crops severely affected are almonds, prunes, peaches, hops and strawberries. Orchards which have been dusted persistently with dry sulphur appear to be escaping with the least injury. But dry sulphur may not be effective at this season where infestation is severe. For this reason minimum strength liquid combinations are recommended for summer spraying. The State Department of Agriculture suggests for this purpose a solution not stronger than 1½ gallons of liquid lime sulphur to 100 gallons of water, or five pounds dry lime sulphur to 100 gallons water. The spray must be so directed as to strike the under side of leaves; the addition of paste spreader also is recommended.

**Aiding the Tariff Fight**—All friends of agriculture and loyal Californians are urged to bring pressure to bear upon Congress to secure adequate protection for the almond and walnut industries, both seriously threatened by ruinous foreign competition. Every reader of ORCHARD and FARM is urged to write or wire his Representatives in Congress and back up the work of the Almond Growers' Exchange and the Walnut Growers' Association.

**Interesting New Pump Principle**—A remarkable pump, which employs the pulsating principle of the geyser is the invention of G. A. Christensen, formerly major, Quartermaster Corps, United States Army. It operates in somewhat the same manner as the hydraulic ram in that there are no valves or complicated mechanical parts. The pump may be used wherever steam, air or natural gas is available. The gas bubbles coming up the intake are compressed by the weight of the liquid above them, their expansive energy creating a reaction which displaces their volume in liquid. A model of this pump is on display at 10[illegible] South Hill street, Los Angeles.

**An Optimistic Poultryman**—The poultry situation has many optimistic angles, according to L. T. McLeod of the Poultryman's Co-operative Milling Association. The new tariff bill provides a set duty on imported eggs, while in the State of Washington poultrymen have "won out in the finals" with a statute requiring that all commercial eggs be branded with the name of the country in which they were produced. Furthermore, restaurants and bakeries using Oriental eggs must display cards inscribed: "Chinese Eggs Used Here." Experiments in shipping eggs by water from San Francisco to New York, resulting in a saving of $1 per case, have been successful, he adds. He suggests that poultrymen at this season feed a dry mash of the best quality and food value, taking care not to allow the fowl to fall off in production because of early moulting. It pays, he asserts, to keep the hens in good condition so that they will lay early in the fall, and be in their prime when eggs are scarce and high.

**Dairy-Veal Combination**—A certain dairyman bought a pure-bred Aberdeen Angus sire for the production of beef calves from his grade dairy cows. He supplies a very special and insistent demand for heavy blocky calves at a fancy premium over the regular market. The veals are taken by an exclusive trade for hotel and cafe supply. Since the dairyman is primarily in the milk business and is not raising pure-bred dairy stock, he finds his "side line" extremely profitable. Replacements in the herd are made by purchase.—Albert J. Mason.

**Control of Grape Phylloxera**—Many vineyards have had to be planted and replanted two or three times because of damage by the phylloxera, a pest easily introduced by planting infested rooted vines. It is said also to be carried and spread by wind, running water implements and packing boxes. Phylloxera may be present in a vineyard several years before killing the vines. It appears first in spots, one or two vines showing a slight shortening of the canes and premature yellowing of the leaves. The spot increases in size, the vines in the center become stunted and die. Vineyards may have phylloxera spots of more than twenty years standing, yet have some vines still alive. Nearly all the insects pass the winter as small brownish larvae in the root system. They commence their work in the early spring with the first sap flow. Vines growing in well drained, loose friable, sandy soil, or on land having a surface of blow sand, seem to be almost immune. The only preventive measure suggested is quarantine against further spread.

**Three Plantings of Sweet Corn**—There is not too many in order to have a two months' supply of this most wholesome and delicious food. The Golden Bantam, White Mexican or Stowell's Evergreen in the order named, or three other good varieties. It is not too late for some of the late-maturing kinds.

## Ben Gonnadooit Says

*I ain't gonna write much this month because I'm plumb wore out f'm arguin' with my wife. She maintains I otta hoe th' garden and I maintain I kain't afford t' neglect my liter'y work, when I am progressin' so well with it. It ain't ginerly known that I was payin' the Editor of ORCHARD and FARM up until last month fer runnin' my stuff. But now he is runnin' it fer nothin,' and I have hopes by next year he will be payin' ME fer it! Now, I ask any fair-minded reader, has my wife any reason fer bein' so danged contrary? Ain't it more important that I develop my writin' talent than my muscle? And what is a few weeds in th' garden compared with th' gems of wisdom thet flows from my fillosofical pen?—BEN GONNADOOIT.*

# Useful Kinks for Business Farmers

Collected for ORCHARD and FARM by Victor W. Killick

### A HANDY MILK STOOL

THIS milker has taken the acrobatics out of his task. No longer does he have to divide his attention between his job and an unruly stool. When he finishes milking "Tillie" and moves his pail to where "Clover" is standing, the stool simply goes along, as shown in the illustration at the right.

### PROTECTING DITCH BANKS

AT the left is shown an inexpensive and serviceable method of preventing erosion of ditch banks. Stakes are driven at convenient intervals. Small brush is cut from 18 to 24 inches in length and laid as shown. Strands of wire stretched over the brush and tied to the stakes, hold the material in place.

### TENTS FOR PLANTS

NO, the scene at the left is not a miniature Indian village, but a field of early vegetables, protected by "tents" made from tule reeds. The reeds are cut about 18 inches in length and tied at one end with string. Try these on your cantaloupes or tomatoes next spring.

### IMPROVISED WHEEL BARROW

THIS home gardener made a wheel barrow simply by fastening an ordinary box to his push plow, which he reversed. An old hose carrier from which the reel has been removed may be used in the same manner, as indicated at the right.

### MEASURING WEIR

IN an irrigated ranching district the farmers continually disputed with the water company concerning the amount of water delivered to them. The company was accused of many inaccuracies.

One of the "zanjeros" of the company finally solved the matter by designing a simple measuring weir to be installed in the ordinary irrigation standpipes on the ranches, so guaged that each farmer could read at a glance the actual amount of water he was receiving at any time.

A light concrete partition is built down the

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# THE MAGIC FORMULA

*The Story of a Young Man Who "Found Himself"*

By Albert Constant Jameson

(Illustrated by George Grant)

IN TWO PARTS—PART ONE

"BLACK and blue—that's the way the whole world looked to me! Why, I even thought of enlisting again." The young man dropped his expressive hands in a gesture of despair.

"Gracious! You must have been desperate—but that's a great way for a war hero to talk," replied his companion smilingly.

"Oh, forget that hero stuff, Reck. Honestly, I've never felt so rotten in my life. I had about decided to go to South America, when suddenly I had the greatest desire to see the old home town—not that there was anything here to come back for," he added, gloomily.

"Well, anyway I hit the trail that night and—here I am."

His recital ended, the speaker sank back into the cushioned depths of his chair, and stared into the fireplace.

The rector smiled again, cleared his throat as though to speak; then, observing a grimly-tragic look upon the youthful face, merely leaned forward and frowned thoughtfully at the hearth rug.

Unnoticed, the minister's Great Dane edged himself into the flickering circle of warmth, and glancing sidewise at his master, settled his head again upon extended forepaws.

The fire snapped as a log burned through and dropped into the emberbed, throwing up a spray of sparks. The dog flicked his ears, but did not move. From the shadows across the room, an old Grandfather clock, after a preliminary wheeze, spoke in solemn, chant-like tones. For several minutes the two men sat in silence.

"Robert, there's a girl mixed up in this somewhere."

The youth started, glanced confusedly at his companion, and turned his face to the shadow. "Yes, there is a girl, sir" he answered finally. "But she is just—just ONE of the reasons."

"Oh." The Rector glanced at him keenly. "Now, see here, Bob! It's time you got wise to yourself. When a man of your breeding, ability and good health confesses total failure, there is something radically wrong. What's the matter? Have you no will power?"

The other did not answer.

"Let me remind you right here and now," the older man continued with some severity, "that when any fellow imagines he's the only one in the regiment who's in step, he's due for a jolt. Did it ever occur to you to look for the cause of your difficulties within yourself—or do you blame Tom, Dick and Harry—yes, and Mary and [illegible] for all your troubles? Answer me that!"

"Oh, I suppose it's all my fault" [illegible] the young man, thrusting his [illegible] deeper into his pockets and sliding [illegible] lower in the chair.

[illegible] Rector [illegible] impatiently and [illegible] with his fingers upon the [illegible]

[illegible] to his feet. "I—I [illegible] Im a regular [illegible] I [illegible] you up 'til midnight [illegible] tale of woe. I'll [illegible]"

[illegible] up to [illegible]. Before the keen search of the other's gray eyes, Robert averted his face. Himself athletic, straight and tall, still he sensed the vibrant power of the churchman, whose youthful form and ruddy face belied the grey at his temples.

"I have thought of some ideas that may help you, Bob. What you need is an anchor—something to tie to. Then, maybe, you'll get a grip on yourself. Why, who are you to be prating about failure—you, with all of life before you! Honestly, it would be funny if you weren't so confounded serious."

The Rector gave him a shake, half provoked, half playful, then sat back against the heavy table, thought a moment, and resumed:

"Robert, I used to be self-centered myself. But I have learned that my success must depend a great deal upon the feelings I arouse in others. Without belief in himself, of course, no man can achieve, but he must have also the respect, friendship and support of his fellow men.

"You are living too much alone. You are wrapped up in your own petty troubles. But, gracious, your case isn't incurable. You are just THINKING wrong, my boy. You have the brains; you have the ability.

"Now, instead of wasting so much sympathy upon yourself, try to achieve your desires through others. There are many ways of doing this. Think it over, Bob."

The young man turned towards the door.

"Oh, I say. Wait a minute," commanded the minister. "You know, I would not be living up to my calling if I didn't deliver a text with my sermon." He was scribbling a few words upon a card which he held out smilingly.

Robert, flushing a little, haughtily thrust it into his pocket.

"Remember, Bob, there's no formula for success that is magical within itself. But I have hit upon a few truths that will work every time, IF—and this is very important—IF you back them up with the right stuff. Good night. Better hurry! It looks like rain."

"GOOD old scout, the 'Reck,' but nutty as can be," muttered the young man, as he stopped at the corner to light his pipe in the shelter of a telephone pole. "Fool I am to go chasing rainbows with him and letting him make sport of me, too."

A passing policeman eyed him suspiciously as, with hat drawn low, and lithe body bent against the wind, he walked erractically along the deserted, tree-lined avenue. Soon, however, he had turned a corner and let himself quietly into the vestibule of his rooming house.

As always, when the weather-beaten door with its ugly blue-glass panel had closed behind him, he felt an added sense of depression and loneliness. What a contrast between this "old hat recipe table" establishment and the cozy home he had known in this same town during his younger days! An orphan since babyhood, still he scarcely missed the parents he had never known, for his grandmother and aunt had surrounded him with love, and given him every advantage they could afford.

But now they too were gone; the old home-place sold. And why he was back here he scarcely knew. It was such a short time since he had left—measured in years—yet what an age it seemed! He sat and gazed from the window for a while, then absently undressed and stretched himself out upon the ancient four-poster.

"WHY, Robert Harper, you've hardly eaten any breakfast." Istalia Smith Benson, proprietor of the "Oak Street Boarding Home" was wont to bestow a motherly solicitude upon her regular roomers.

"I don't seem to have much appetite, Mrs. Benson," Robert replied, rising leisurely from the table.

It was not until then that he thought of his conversation with the Rector the night before. Fumbling in his pocket he drew forth the card with its scribbled message. He gazed at it intently for several moments, made as though to tear it up, changed his mind and put it in his pocket again.

"Simply batty!" he muttered.

"W—what's that?" ejaculated the startled landlady.

For the first time that morning, the young man smiled. "Oh, I wasn't speaking to you Mrs. Benson. I was just thinking about something I heard last night."

"Queer boy, that," she thought. "But a nice, clean young fellow. There he goes, as solemn as an owl. He must have received some message that upset him. Well, this isn't ordering the groceries!"

And she bustled about her morning's work.

TWICE, during his self-absorbed journey down town, Robert stopped, rubbed his chin thoughtfully, and stood in strange meditation until he realized with a start that fellow-pedestrians were staring at him. Finally he quickened his step, his face cleared and he even whistled a little. Then instead of dropping in at the "Idle Hour" pool hall, as had been his morning custom of late, he sprang aboard a passing street car.

Robert's "home town" was a progressive young, middle-western city, with busy factories and a goodly number of substantial citizens. As a railroad center and the supply point for a rich agricultural district, it was conceded to have an interesting future. In fact, its growth in population and the development of some of its business institutions during the past few years had been remarkable.

It was before the "plant" of the Hillhurst Engineering and Construction Company that the young man finally alighted.

"Morning," he greeted the girl in the outer office. "Will you please ring Mr. Langly for me? I'm anxious to see him at once."

"He's awfully busy. I am afraid there's nothing doing today. Could

(Continued on Page 32)


# Kant-Skore PISTON

## Stops Oil-Pumping Plug-Fouling, Piston Leaks and Slaps

Loose-fitting pistons cause nearly all modern engine troubles.

Kant-Skore Pistons are snug-fitting, and stay that way. Unlike old-style pistons, they can't expand and "score" the cylinder. The spiral slots in the widest part of the piston take up all expansion.

So here is a piston that gives perfect compression all the time, stops power leaks, stops oil-pumping, stops plug-fouling, reduces carbon to almost nothing, reduces gasoline expense and in most cars reduces oil consumption 50 per cent.

What's more, the light weight of the Kant-Skore reduces wear and tear on the bearings, and gives a smoothness and flexibility of power that almost challenges belief.

Kant-Skore Pistons transform an old slapping oil-pumping engine into a smooth-running, quiet, powerful motor, even better than it was when new. The cost is moderate.

Phone us or ask your repair shop to do so.

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FANCHER CREEK NURSERIES

Fresno, California

# The Valley of Surprise

## An Agricultural Gem in a Rough Setting

By O. H. Barnhill
ITRIBUTING EDITOR OF ORCHARD AND FARM

UCKED away among the hills of Modoc County and very nearly a part of three States is one of the most interesting of California's tile farming districts.

ts "discovery" is attributed to Gov- ment engineers, who while survey- g the line between Nevada and the iden State, were amazed by the ld climate, heavy growth of grass, undance of wild fruit and numer- s springs of pure, cold water which y found in a little valley near the egon line.

Their astonishment at discovering many natural advantages caused m to name the valley "surprise," a le which all visitors agree was well osen. For on all sides there is a dry, ld, desert country with thin soil and rigorous climate, yet Nature seem- gly made an exception of this par- ular spot, blessing it with those ad- ntages which commonly are associ- d with more favored localities.

The weather is delightful most of e year, with an abundance of sun- ine, while extremes of temperature e seldom disagreeable, on account of e aridity of the atmosphere.

### "SOME" WIND!

The wind, however, sometimes blows beat the band." The writer once w a piano box from which the cover d been removed picked up by the nd and blown a half dozen rods rough a wire fence, which reduced e box to kindling wood. It is said at when a Surprise Valley man's hat ws off he is not surprised, nor does even give chase, but just waits til someone else's hat comes along.

### A FERTILE SOIL

Rich, black soil of almost unknown pth when irrigated produces heavy ops of hay, grain, fruits and vege- bles. Some of the land is sub-irri- ted. A forty-acre field of such land oduced the prettiest crop of alfalfa have ever seen; three crops, in fact, a single season.

The valley is about 60 miles long and miles wide, approaching within a zen miles of the Oregon boundary d almost touching the Nevada line the east. Most of the land in culti- tion is in a narrow strip on the west de, next to the mountains. A number small streams flowing from these untains, furnish a limited amount water for irrigation. The canyons m which these creeks emerge are narrow and steep that there are not itable reservoir sites for the conser- tion of flood water.

Much of the latter could be profit- ably used by being turned onto the land during the season of high water, which is early spring. The general practice, however, is to either let this water go to waste or allow it to flood swamp lands near the chain of almost dry lakes in the center of the valley. The result is a small crop of marsh hay. The same quantity of water ap- plied to alfalfa fields would produce many times as much forage, of better quality. A few big landowners who got on the ground early, secured title to most of the water and use it in the above wasteful manner, following the line of least resistance.

### GOOD WATER PLENTIFUL

However, there are numerous springs and artesian wells, the water from these sources and also that flowing in the creeks being of the very best quality, containing no alkali or other in- jurious substances.

The artesian wells are mostly 75 to 200 feet in depth, some of them sending up streams of sufficient volume to be of value for irriga- tion.

Hay and live- stock are the chief products, although considerable grain and alfalfa seed are grown, as well as fruits and vege- tables for local consumption.

Much of the hay is fed to range stock—cattle, sheep and horses—which graze in the nearby mountains and be- long to the valley ranchers. Large quantities also are sold to sheep men from other localities who winter their flocks in the valley. Beef, mut- ton, wool and al- falfa seed are the principal products which find their way to outside mar- kets.

One of the most surprising things about this favored valley is the fact that tender fruits and vegetables can be grown successfully. The altitude is 4750 feet—as high as many mountain passes—yet peaches, apricots and sweet cherries thrive, in addition to apples, pears, plums and berries, while toma- toes, squashes, sweetcorn, watermelons and cantaloupes are found in the gar- dens. Wild plums and cherries, "serv- ice" and elderberries grow along the streams.

Some of the finest winter apples the writer has ever seen were grown in the Surprise Valley—carloads of them— and sold for 50c and 75c per bushel in 1919, when similar apples elsewhere were bringing upwards of $2.00, boxed. This condition is due to the fact that fruit growers in that locality know lit- tle about preparing their crop for mar- ket and selling it to advantage. I have seen loads of the finest kinds of sweet cherries and apricots go to waste for this reason. It is truly a surprising country, in more ways than one!

In the mountains there are forests of pine and fir, used for lumber and fuel. Cedar and mahogany of the dwarf species grow in the foothills and are cut for fuel and fence posts, both of which bring big prices. The writer has vivid recollections of sledding wood down those foothills, which are very steep, through gorges filled with snow. Sometimes a sled load of poles bound on with a chain turns com- pletely over, taking the team with it.

Surprise alfalfa seed commands the very highest price, many buyers con- sidering it superior even to the Utah product. All conditions appear to be favorable for the production of seed of the highest quality. As high as $100 per acre is received for seed and straw, the latter being worth about half as much as hay. Yields average perhaps 150 to 200 pounds per acre, although half-ton yields have been reported, as well as others which were too small to pay for threshing.

The best alfalfa seed lands are lo- cated near the mountains, in the ther- mal belt, the most favored spot be- ing near the mouth of a canyon, on ac- count of favorable air currents. The lower, heavier lands nearer the lakes are better for hay and grain, but sel- dom produce a paying seed crop. This is because of the frequent frost in- jury and also on account of the con- tinuous supply of moisture, which keeps the plants growing leaves and stems instead of going to seed.

Alfalfa for seed is rarely irrigated and only one cutting is made during the season. More or less spring and fall pas- turage is secured in connection with the seed crop. Most of the alfalfa now being cut for seed originally was planted for hay and was thinned out by gophers and ground squirrels, a thin "stand" being necessary for seed production. A few fields have been planted in rows and are being culti- vated, but it is too early yet to judge of the success of this method.

The usual method of harvesting alfalfa for seed is to cut the crop with an old fashioned reaper, which leaves the plants in small bunches. When dry, these are loaded onto header wagons, which have tight boxes, and are stacked to await the thresher. Those who operate the latter charge so much per hour for their services, furnishing everything.

The total amount of this valuable seed produced in the Surprise Valley varies greatly each year, averaging perhaps eight carloads. Prices form- erly ranged from 12 to 15 cents, but in 1919 rose to 20 cents, and after most growers had sold, 30 cents was offer- ed. A single big Eastern seed com- pany usually buys the bulk of the crop, paying a local dealer for hand- ling the business. The latter begins contracting early in July, paying down enough to bind the bargain.

### CHEAP SEED EXPENSIVE

The price set is for No. 1 seed, which is not bought "in the dirt" as in some regions. Fanning mills reclean the seed after it leaves the threshing machines, rejecting everything except large, plump grains. These are mostly of a bright orange color, although frost in- jury sometimes leaves part of them brown. Some crops contain a large per- centage of second grade seed, which consists of small and shrunken kernels. This is jobbed out at about half the price of good seed and is sown by many local growers. Such seed how- ever, is dear at any price, since it can- not produce plants of the same size and vigor as are grown from first grade seed.

The alfalfa seed business is an in- teresting and profitable one and is not yet thoroughly understood. It is known however, in addition to the forego- ing, that the plant should have suffi- cient moisture to make a large growth, but there must be little moisture dur- ing the seed-forming period, as well as favorable weather conditions to bring about perfect pollination.

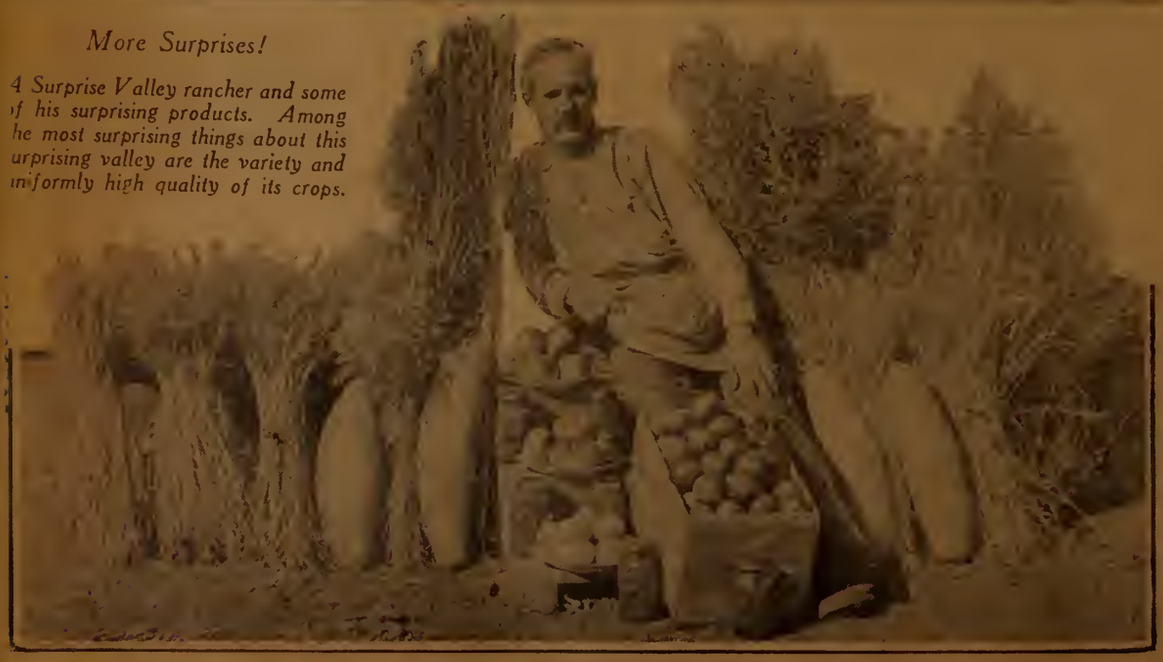
(Continued on Page 24)

*Surprise Valley Apples*

*Good Bottom Land at the Foot of the Mountains*

*More Surprises!*

*A Surprise Valley rancher and some of his surprising products. Among the most surprising things about this surprising valley are the variety and uniformly high quality of its crops.*



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# New Fall Catalogue

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# EDITORIAL DEPARTMENT

*Timely Topics among Farm Folk*

## Official Protection for the Land Buyer

CALIFORNIA has taken a great step forward in authorizing its Real Estate Commissioner to inspect, and to pass upon colonization projects. The land-selling history of the State unfortunately includes chapters of which we may well feel ashamed. And while the exploitation of settlers is neither frequent nor general, still it is well to discourage any further attempts of this kind.

By purchasing property from a company whose plan and organization have received the official stamp of approval, the new settler may guard against misrepresentation and unfair treatment.

It is urged, therefore, that any one contemplating the purchase of farm property in this State, request information from the Real Estate Commissioner, Sacramento.

## Another Triumph for Co-operation

FOR years the producers of livestock who shipped to the great market centers have been at the mercy of middlemen who acted as go-betweens in selling to the big packers and other buyers.

Through the powerful livestock exchanges, these commission men have been able arbitrarily to charge certain prices for their services. As long as the shippers felt they were getting a square deal, the arrangement was very satisfactory, but during the last few years the charges gradually have been advanced on some classes of stock from $10 a car to as high as $32 a car.

Finally this tariff became unbearable to the harassed livestock producers. Added to demoralized markets and doubled freight rates, this tax became the "straw that broke the camel's back." It was then that the National Wool Growers' Association, representing the principal sheep raisers of all the Western States, took matters into its own hands. A committee was sent to the markets to request the various exchanges to reduce the commission rates.

## Producers Get a Snubbing

THE earnest appeal and gentlemanly approach of the wool growers' committee was met with a cold shoulder. The growers did not remain long to argue the matter; instead they returned West and held a council of war. The result was the organization of the Wool Growers' Commission Company, which has opened offices at Chicago, Ill.; Omaha, Neb.; Kansas City, Mo.; St. Joseph Mo., and Denver, Colo.

As the man to establish and manage this organization, the Wool Growers selected A. J. Knollin.

"A. J." was chosen because of his lifetime of experience in the business, and because he was one of the organizers of the National Wool Growers' Association. Furthermore, he is a recognized authority on livestock breeding, feeding and management, as well as one of the largest operators of Western ranches and pure bred livestock herds.

The first action of the Wool Growers' Commission Company was to reduce commission charges 40 per cent. This came as a bombshell in the camps of the exchanges, and already has resulted in an attempt on the part of many of the members to meet this new kind of competition which they so little expected, and for which they were totally unprepared.

ORCHARD and FARM is proud of this accomplishment, not only because it attests the new independence of the producers, but also because it emphasizes the service to agriculture which always has been associated with the name Knollin, a service which your editor humbly is attempting to perpetuate.

## A Sign of the Times

FARM organizations and the livestock fraternity throughout the country are watching with the most intense interest this latest activity of outraged producers, who are determined to get their fair share of national wealth, and to release themselves from the fetters of a wasteful system of distribution.

Not that the middleman always is non-essential, but the time has passed when he can take advantage of his position at the expense of those who make his calling possible.

Until the commission men seized upon war conditions as an excuse to increase their rates beyond reasonable limits, and then refused to meet a changing situation which called for a similar scale of reductions, they enjoyed a legitimate business and held the respect of their clients. By their own actions, however, they placed themselves in the light of profiteers, only to find that, like the railroads which demanded exorbitant rates, they "cut off their own heads."

Thus has been written a new chapter in the astounding story of our great rural rebellion—another episode in the agricultural history which is being made in this trying reconstruction period. And no doubt other livestock organizations will follow the lead of the sheepmen.

## Is Co-operative Buying Desirable?

AS FOR co-operative marketing—looking back over the history of California fruit growing, most of the producers of this State proclaim in unison, "We are for it." Then, fired with the enthusiasm of successful accomplishment, a few recklessly advocate, as well, co-operative buying.

But, stop! Is this the same? Is the mutual buying plan as beneficial as the selling plan? Does it really offer any saving in the long run? In some cases, perhaps—but study of the subject discloses many pitfalls. To compete with existing systems in many cases would mean only duplication of them. In other words, no great buying organization can displace a similar organization without taking over or replacing most of its machinery. A selling organization, on the other hand, may displace a large number of less efficient organizations.

Those who advocate unbridled meddling with the buying side of the farmer's business should make haste slowly. Sad experience would seem to indicate that co-operative commodity buying is advisable only under local conditions, on a small scale where there is a quick turnover, or in the mutual purchase of large quantities of a single commodity, such as fertilizer.

How disastrous it would be, for example, on a falling market, should the co-operative concern find itself carrying a great stock of merchandise which was decreasing rapidly in value, but which could not be disposed of quickly because of the limited demand.

On the other hand, should the members of a farm bureau all require a certain article at a certain time, they might find it of great advantage to pool their funds and purchase in carload lots at a low price with an assurance of quicker delivery. Such deals have been highly profitable to the members.

But this matter of co-operative buying can be carried just so far and no farther. It is well to know when to stop.

Co-operative selling? Ah, that is a different thing! And the farmer's right to dispose of his products to the best advantage merely is one enjoyed by other classes in all industries.

## Kiddies First at Oregon Fair

TO A fellow craftsman, Edwin A. Smith, editor of the Oregon Farmer, Orchard and Farm extends congratulations and best wishes, for Mr. Smith has conceived the idea of holding a "Boys' and Girls' Congress" at the great Portland Exposition in 1925.

It is proposed, in fact, that the entire exposition center around the young people, making it unique in the annals of agriculture. O. M. Plummer, manager of the Pacific International, as the Portland Show is called, is said to have become an enthusiastic supporter of the idea.

The success of the boys' and girls' club movement is one of the outstanding developments of modern agriculture. Orchard and Farm therefore hopes that the worthy plan of our Oregon friends will be fulfilled happily and successfully.

## Has the Pig Club Seen Its Day?

THE boys' and girls' clubs have been a great success in all parts of the country. Breeding of better animals has been encouraged, the work has been educational, and the youngsters have learned how to make and save money. But almost any big idea holds within itself possibilities for improvement. Hence the newer development in the education of farm boys and girls—the Junior Farm Center.

So impressed was the Vocational Agricultural Association of California with the possibilities of this plan that its members passed a resolution during a recent conference at Ontario, recommending the Junior Farm Center as the logical organization for the high schools of California.

It connects the work of the youngsters with that of their parents. The president becomes, by virtue of his office, a member of the executive committee of the regular farm bureau of that district. It is a further development of the community idea which has been the basis of the work of the Farm Bureau.

The Junior Farm Center is here to stay. It affords wonderful opportunities for making better farmers and better citizens of our young folks.

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CONCISE CONTRIBUTIONS
On practical agricultural subjects are invited. Unavailable manuscript will be promptly returned if postage is inclosed. Preference is given to accounts of actual experiences, telling how, when, where, who and why.

## SOURCES of INFORMATION
*"The Fruit of the Tree of Knowledge"*

THE following new Government bulletins now are available and will be sent free upon request. Address Division of Publications, U. S. Dept. of Agriculture, Washington, D. C. Order by number.

| | FARMERS' BULLETIN |
|---|---|
| Rice as Food | 1195 |
| Protection of Mesquite Cordwood and Posts from Borers | 1197 |
| Corn Earworm as an Enemy of Vetch | 1206 |
| Organization of Rural Community Buildings | 1192 |
| Making American Cheese on the Farm | 1191 |

The following bulletins which may be secured from the College of Agriculture, University of Illinois, Urbana, Ill., contain valuable information for the housewife:

| | CIRCULAR |
|---|---|
| Suggestions for Making Jelly, Jam, Butter, Marmalade | 37 |
| The School Lunch | 41 |

### New Agricultural Books

"PLANT Propagation, Greenhouse and Nursery Practice," by M. G. Kains, the Orange Judd Company Publishers, New York. Net, $2.25.

The value of this up-to-date text book is enhanced by over 200 illustrations and diagrams. It deals with all branches of the subject, including germination, seed testing, hothouse planting, grafting, budding and nursery management.

"THE Principles and Practice of Pruning," by M. G. Kains, the Orange Judd Company Publishers, New York. Net, $2.50.

This volume is one of the most complete treatises on pruning ever published. More than 300 illustrations aid in making the author's message clear. It includes chapters on pruning and training grapes and ornamental shrubs and vines, as well as a study of practical tree surgery.

"DEHYDRATING Foods," by A. Louise Andrea, the Cornhill Publishing Company, 2-A Park Street, Boston, Mass. Price, $1.75.

This volume gives practical directions for successful dehydration, both for homes and commercial establishments, its most valuable feature, perhaps, being a complete line of recipes for cooking and serving dehydrated products of all kinds. In view of the growing interest in food preservation, this book bids fair to achieve a wide circulation.

"THE Desert and The Rose," by Edith Nicholl Ellison. The Cornhill Company Publishers, Boston, Mass. Price, $1.75.

Those who have experienced the spell of the desert especially will feel the grip of this interesting personal story of a woman, who, as a "tenderfoot," went to live upon a ranch in southern New Mexico and found there health, and the peace that had been denied her in the East. The author has given her story the true atmosphere of the great southwestern desert. It is illustrated with photographs, typical of New Mexico life.

### "NOTHIN' LIKE IT"

When a feller's ben a-plowin'
'Til he's groggy in th' head,
There ain't nothin' seems to fit him
Like th' good ol' bed!

Guys that first invented airplanes
Surely done some wond'rous things,
But they hadn't nothin' on th'
Feller thet invented springs.

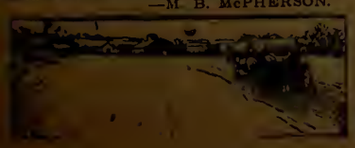
Rockin' chairs is nice fer wimmin,
Rests 'em mightily, 'tis said—
But fer fellers that's been haylin'—
Nothin' like th' good ol' bed.

Must a ben a little awkward
Fer them monkey folks—way back,
Sleepin' hung up in th' branches.
(Ef they slept too sound—ker-whack!)

Sometimes when I've druv a tractor
Until all my bones is sore,
[illegible] afraid I'm getting oldish—
(Though I'm only fifty-four).

[illegible] by mornin' I'm all rested—
[illegible]t a-wishin' I was dead.
[illegible]n a fe[illegible]w d[illegible]g-gone tired—
[illegible]thin' like th' good ol' bed!

—M. B. McPHERSON.



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Write for catalogue and if a beginner for Cottage Bee-Keeping, which will be promptly mailed free.

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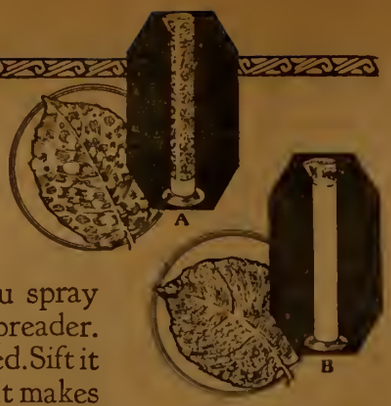
*Spreads the Spray*

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The next time you spray use our CASEIN spreader. No cooking required. Sift it dry into the tank. It makes the spray cover the tree evenly. It's economical. Ask your dealer, or write us for price and circular.

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is closing her doors by Limiting Immigration

CANADA

is keeping an open door and Inviting Colonists

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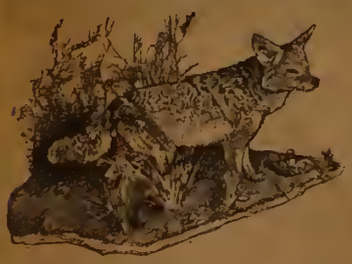

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# "BOB" JONES' CORNER

## Little Stories of Farming

By ROBERT E. JONES

Contributing Editor for Central and Northern California

**Both in California**—Mark Twain said:

"Heaven for climate—
"Hell for Company."

In California, fortunately, we have a happy combination of both—meaning climate and company, of course. With room for a few million more people in California, we can take our choice on earth. "Oh, Death, where is thy sting?"

**Ferndale Leads**—The Ferndale Cow Testing Association of Humboldt County, the first association to be established in California has made a remarkable record in improvement of the productivity of cows. Everyone knows how it is possible, through the cow testing association, to check out the boarder cows and to carry on a constructive breeding program by selecting the best animals to breed to good bulls. The Ferndale Association is the largest in the United States; the dairy division of the United States Department of Agriculture so reported in a recent bulletin. This bulletin shows that seventeen herds in the Ferndale Association average from 400 to 495.76 pounds of butterfat per cow per year. Nineteen herds averaged from 350 to 400 pounds per cow per year and thirty-eight herds averaged from 300 to 350 pounds per cow per year. The six low herds, averaging from 213 to 250 per cow per year, were all on test for the first time. The highest cow of the association was "Speck," belonging to Nate Hauck, and she produced 728.95 pounds of fat in a year.

**Who is Maddox?**—Harry S. Maddox, the new State Market Director, who recently assumed office, now as a part of the State Department of Agriculture organization, formerly was Secretary of the Sacramento Chamber of Commerce. Prior to this he was Secretary of the Yolo Board of Trade. Maddox came to California from Colorado, where he was prominently identified with development work. He is an aggressive man and a public leader of ability.

**Saving Cup Grease**—Some idea of the magnitude of the job of a man who is operating a big farm with a great deal of power equipment may be gleaned from the following paragraph. It is from a letter written by the general superintendent of a big Sacramento Valley ranch to his foreman: "Cup grease is to be ordered in half-barrel lots and is to be kept in the store room in the camps. It is then to be put in our own containers—tins, pails, cans, etc.—and issued to the men who have to use it in small quantities. Do not order in cans or cases. It costs too much money. Do not allow tractor men to have half barrels at a time, as dirt in the grease and too large quantities on hand tend to encourage wasteful practices and deterioration of the product."

**Cattlemen's Program**—You may expect to hear of a definite program of action for the California Cattlemen's Association in the near future. Roy M. Hagen, the new secretary, formerly in boys' club work under the agricultural extension system, recently said he was about ready to place some definite plans before the association directorate. For a long time the Cattlemen's Association has been picking at the marketing problem and the problem of feed for cattle on overstocked ranges when the dry years come, but nothing thorough has been done. California produces about 10 per cent more cattle than it consumes today and right now many parts of the State have hungry cattle, due to deficient rainfall. The two main things needed in the California cattle industry are a stabilized market and provision for "insurance" feed against a dry season on the range.

**Son Takes Charge**—James Mills Jr., a graduate of the California College of Agriculture, has taken charge in the field of the great James Mills Orchard Corporation holdings at Hamilton City, Glenn County. Mills is a very aggressive young man and is following the footsteps of his father, who made himself famous by developing the great Arlington Heights orchard at Riverside and later undertaking the citrus development in the Sacramento Valley. At the James Mills Orchard Corporation properties, a combination of fruit growing and livestock raising is carried on. The properties include, as well as the orange and deciduous fruit plantation at Hamilton City, a large lemon grove near Maxwell, Colusa County.

**The Passing of A. W. Morris**—Recently was held in Woodland the funeral of a great and good man, whose unmeasured contribution to the advancement of civilization will live long after him. I write of A. W. Morris, known the world over as the owner of Tilly Alcartra, the greatest dairy cow of all ages. Mr. Morris was in an automobile accident near Shasta Retreat, July 9th.

His greatness did not lie in the mere ownership of Tilly Alcartra, but rather in the fact that he and his sons were able to develop many such great cows and to pass on to their neighbors and to breeders in other States and in foreign lands Holstein blood lines which will have an untold benefit in the development of the dairy animal.

Last month I told of a remark of Judge Peter J. Shields, who pointed out how much good a man such as Mr. Morris could do by leading the way to better breeding of livestock. It is beyond any mortal to say how far-reaching will be the effect of this man's work in improving the productivity of the cow. It is not hard to imagine the saving of the lives of hundreds of babies through increasing the quantity of milk produced by the cows of the world.

Asa Morris was a beloved man as well as efficient and hard-working. He possessed a personality that attracted people to him. His home town was profoundly shocked when his death was reported, and telegrams of condolence came to the family from all parts of the United States.

The life of Mr. Morris is an inspiration to any ambitious young man. He came to California more than thirty years ago from Pennsylvania, physically weak. He arrived with very little funds and labored for seven years as a farm workman to get his start. Finally he acquired a dairy as a tenant and later as an owner. He left Yolo County and went to Fresno, where he bought a vineyard and lost all his savings when a raisin slump came. Then he went back to Yolo County to start over again, beating his way up by hard work and intelligent farming practices. When he died he was owner, with his sons, of probably the greatest herd of dairy cows in the world. The A. W. Morris & Sons Holstein herd holds world's records galore.

One of the interesting things about Mr. Morris' life is the fact that he was able to interest his four sons with him. All of them grown men, they stuck by their father in community effort and helped to make the family ambition of a great Holstein herd possible.

Although 64 years of age, Mr Mor-

[illegible] at the close of his career, was preparing for the crowning achievement of his lifetime. With the boys he had worked out plans to concentrate all future effort on the Holstein herd and to give up divergent farming. A new place on the main road between Woodland and Knight's Landing had been purchased, and it was planned to erect concrete barns there. It is sad that he could not have seen this fruition of a lifetime of usefulness.

But Mr. Morris passed while still "in the harness." Undoubtedly he would have worked on eagerly to the end, ever planning and ever dreaming of new worlds to conquer. He was that kind. It is good to know that he has left behind him four efficient sons, trained to carry out the work he could not finish.

**Away From Soft Times**—I read an ad the other day, which went something like this: "Not back to hard times, but away from soft times." Everyone is complaining of hard times now and I wonder if it is not due to the fact that conditions were so unusually prosperous during and just after the war. Nobody will deny, however, that the farmer is having his troubles today. I had a chat with a prominent Sacramento Valley farmer this morning and he said that he was going to sell his house in town and go back to the farm and ride a tractor. During the war this man made a lot of money and moved to town, operating his farm from a distance. He felt that a long career of service entitled him to a comfortable home in town, but was game enough when the pinch came to get back on the job. The trouble is that the products of a farmer's labor respond more quickly to a change in economic conditions than does any other commodity. The result is that the farmer is either riding on a wave of prosperity or sinking into a sea of despond, and the whole performance is highly trying on the nerves. Some farmers find it difficult to sleep nowadays.

**Farms for Ex-Service Men**—California has taken steps to care for ex-service men who want to farm. The Hart bill, which passed the Legislature, provides for financing of veterans up to $7500 for purchase of farm land anywhere they may want to buy. The Arbuckle bill creates a board, similar to the California Land Settlement Board, which is authorized to select land and establish farm colonies for ex-service men. This land will be sold on the easy payment plan with forty years to pay. The two bills carry appropriations totaling $3,000,000. The Inman bill calls for a $10,000,000 bond issue to finance a continuance of the work contemplated under the Hart and Arbuckle bills. This bond issue proposal will be voted on in 1922. It is rumored that Dr. Elwood Mead, chairman of the California Land Settlement Board, will be a member of the Veterans' Welfare Board created by the Arbuckle bill.

**The Meat Problem**—Consumption of meat in the United States has dropped 27 per cent in the last ten years, according to facts collected by Dr. C. W. McCampbell of the Kansas Experiment Station. The meat producers of the Middle West now are considering an advertising campaign to increase meat consumption. Dr McCampbell, at a recent feeders' convention, said to the delegates:

"Increasing by one ounce the daily per capita consumption of beef in the United States for the year 1921 would be equivalent to an increase of five million carcasses of 500 pounds each, 40 per cent of the total cattle slaughtered last year. An increase of one ounce daily in the consumption of pork would be equivalent to sixteen million hog carcasses of 1[illegible]0 pounds each, nearly 50 per cent of the hogs killed last year, and an increase of only one-quarter ounce in mutton would be equivalent to [illegible] million sheep carcasses of [illegible] pounds each, or practically as many as were slaughtered in the country last year." The "big packers" [illegible] have inaugurated an [illegible] publicity campaign.


# BOYS AND GIRLS

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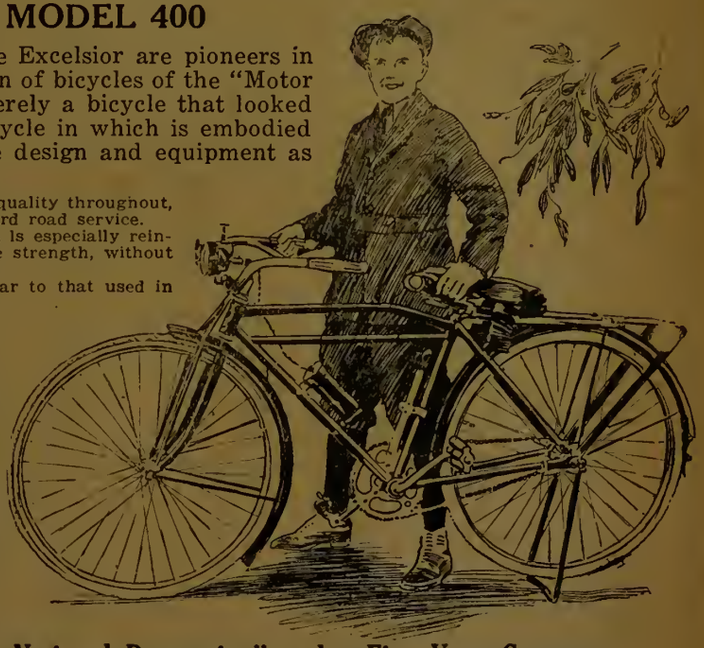

The manufacturers of the Excelsior are pioneers in the designing and production of bicycles of the "Motor Bike" type, building not merely a bicycle that looked like a motorcycle, but a bicycle in which is embodied such features of motorcycle design and equipment as are of real practical service.

Model 400 is a bicycle of highest quality throughout, especially designed and built for hard road service.

The frame, of motorcycle pattern, is especially reinforced to give the greatest possible strength, without excessive weight.

The fork is the truss type, similar to that used in many motorcycles.

The handle bar is handsome in design and powerful in construction, the cross brace adding to both appearance and strength.

The stand is the armless type, strong, durable and quick acting.

The handle bar grips and pedals are exactly the same as used on many standard makes of motorcycles.

While it must not be understood that this is an exceptionally heavy bicycle, it is built for extra heavy service, and is, we fully believe, the strongest, most durable, and at the same time one of the lightest running bicycles that was ever built.

## "The Bicycle With a National Reputation" and a Five Year Guarantee

**SPECIFICATIONS**

**Frame**—Motorcycle type with gracefully curved top tube, in which there are no kinks or short bends. Made throughout of 18-gauge Shelby seamless steel tubing. All connections heavily reinforced in accordance with motorcycle construction. Main frame tubes one inch in diameter. Heavy motorcycle type head fittings. Pinchbolt seat post cluster with nickeled bolt, nut and cap washer.
**Fork**—Trussed motorcycle type. Special drop forged crown 18 gauge fork sides. Extra heavy one-inch head stem with flush cap lock nut. Head fittings, outside cups and cones with ball retainers for 3-16 inch balls.
**Seat Post**—Extra heavy forged top, rear L heavily nickeled.
**Wheels**—Rims fancy enameled, fitted with any standard make of front hub with coaster brake to match. Perfection anti-rust spokes 36 front and rear.
**Chain**—Diamond No. 71 roller, 3-16x1 inch pitch.
**Hanger**—Excelsior one piece, specially designed for heavy work, with large cups, cones and balls. Accurate and positive adjustment. Seven-inch cranks of Diamond shape. Choice of coaster brakes.
**Sprockets**—Front 26, rear 10 tooth, 3-16x1 inch pitch.
**Mud Guards**—Dropside, wide and heavy, with front extension, double flat steel braces front and rear carefully polished and heavily nickeled with leather splasher on front guard.
**Tires**—Firestone non-skid single tube 28-1½ (fully guaranteed) with option of U. S. Chain Tread single tube.
**Saddle**—No. 2 Troxel Motor Bike.
**Handle Bars**—Shelby Motor Bike braced bar, motorcycle type, with cross brace made from extra heavy Shelby seamless tubing. Rubber motorcycle type grips.
**Pedals**—Standard motorcycle type.
**Stand**—De Luxe folding.
**Finish**—Frame and fork handsomely and heavily enameled blue with white head, seat post cluster and center bar. All main tubes pointed and striped.
**Optional colors**—Carmine and white, black and green or military drab. All metal parts carefully polished and nickel plated.
Black enameled Carrier Rack and leather tool bag containing all necessary tools.

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Bicycle Department:
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Age..... Parents' Name.....

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# What About "Tractor Service"

By W. H. Gardner

*PROBABLY the service question has been "cussed and discussed" more than any other factor in power farming. Anyone who has "listened in" on such debates might jump to the conclusion that tractor dealers and tractor buyers are natural enemies. Quite to the contrary, however, their interests in many respects, are identical. It is with the hope, therefore, of clearing up some of this unfortunate misunderstanding that we publish the accompanying frank and informal talk. It is written, to be sure, from the tractor man's viewpoint, but should awaken a response in the mind of every tractor owner.—Editor.*

THERE'S no such thing as free service. It is paid for—and by the tractor buyer! The price of the tractor may have included the cost of it, or the repair parts list may hide it.

But any factory that actually gave away unlimited service eventually would "go broke"—and the recipient finding himself the owner of an "orphan" tractor, would pay for such mistaken generosity. Tractor sales MUST be backed by service, but the consumer must pay for that service.

The nearest to "free" service is the giving of expert advice that is freely proffered—and charged to advertising. Some dealers have a "trouble man" constantly in wait for a cry for help Only a nominal charge, if any, is made for his visits. But even then the owner pays! He becomes dependent upon the distant expert. He either neglects to learn to make simple adjustments or repairs, or, in case of trouble, idly twiddles his thumbs until help arrives. He pays therefore in terms of lost time.

## AT TIME OF PURCHASE

The farmer who is not an experienced mechanic is entitled to the aid of an expert in starting his machine. He should receive instruction in adjustments, in the simpler repairing work, in proper lubrication, and in the most efficient methods of handling and driving. This will vary from three hours of the service man's time to three days, depending upon the machine and on the familiarity of the owner with things mechanical.

He should expect and receive free of charge, a visit about a month afterwards from the same expert—for he'll have a lot of questions to ask. The success of his investment will depend upon getting off to a good start.

Some distributors claim that all this should be paid for on an hourly basis. They say that the time required properly to "deliver" a tractor is so variable that it isn't fair to average it.

A two-cent stamp may send a letter three blocks or three thousand miles. The cost of the reasonable service defined above may with equal justice be averaged, when it becomes a mighty small factor in the cost or price.

## EACH MACHINE "DIFFERENT"

Here's the reason: If all service is charged, there are those who will try to get along without any. That is wrong, for every machine has its peculiarities—little differences and quirks that should be explained. The distributor who stands squarely back of his machine will insist that it be properly "delivered." Those first few days are critical. A few hours of running will loosen bolts, necessitate changed carburetor adjustments, "work in" tracks until a link has to be removed. Only a man who has the "feel" of a machine will sense the time and place for corrections.

Every new machine should have at least two free visits from an expert, one on delivery and one a few weeks later. Other attention should be charged for. And owners should try to get along with this much service, for the ultimate success of the tractor depends upon acquiring early self-reliance in handling it, and the ability immediately to "feel" the beginning of trouble and to find and correct it.

## Replacement Parts Orders

AN ORDER for a motor support bracket came in to a California factory the other day. There wasn't one in the bins, nor on the production floor. The last stock order had been overlooked. But there was no delay, no "stalling."

A brand new machine was partly dismantled and robbed of the part in question. The tractor owner got a $15 part in twenty-four hours, but it cost the company a hundred dollars to supply it.

Back in the days of the war boom in tractors another company faced the alternative of holding up an old tractor in the harvest field for want of a certain bearing—they were mighty hard to get in those days—or delaying the completion of a new machine which an impatient buyer was eagerly awaiting. Here again the old customer was served and a $3000 order imperiled.

These factories did the right thing. There are many such instances. For the best concerns have a rule, written or not, which insists that field machines shall be kept operating.

## WHAT IS FAIR?

The tractor owner should insist upon the most prompt attention to his orders. He should demand a "parts book" to facilitate getting the correct description of material needed. But he should not ask for printed prices—not in these days of fluctuating costs.

He should expect to pay cash for parts; indeed, should look on it as a privilege to do so. For the distributor that carries book accounts from season to season must charge heavily for capital tied up and for uncollected accounts. To be sure, many farmers aren't able to pay cash at all seasons of the year. Most dealers will arrange special accommodation in such cases, and the farmer will accept it, knowing that he isn't being taxed for the carelessness and lack of responsibility on the part of others.

The prices of parts generally are high. The factory usually has hundreds of thousands of dollars tied up in finished stock, held for quick shipment to supply the varying demands of dealers everywhere. The dealers themselves must carry a great deal of material that turns but slowly, lest they be unable to deliver in an emergency. Many items become obsolete and the tendency is to overstock rather than be caught short. Then there is a stock clerk, usually a high-grade man of intelligence and experience, who is well paid.

## TIME IS MONEY

The tractor owner never should forget that lost working hours are very expensive. He should be willing to reward the dealer who insures against delays. Indeed, part of the price for replacements is a premium on an insurance policy to protect against costly breakdowns in the field.

Standard hardware he should get at his store. It will be cheaper. As a matter of fact, there isn't a factory or dealer in the tractor industry who wouldn't get out from under the parts business if he could. There's little money in it and lots of worry. It is a necessary evil. In conclusion, then, the tractor owner should demand prompt and correct attention to his parts orders, and gladly pay for it.

## CLAIMS FOR ADJUSTMENTS

Whether the guarantee clause in the printed order form declares that defective material or workmanship will be made good in six months or in a year is of little matter. It's the spirit behind that guarantee that counts. One factory guarantees its tractors only for six months, but never has turned down a legitimate claim. A few months ago it replaced a transmission case on a

three-year-old machine, asking the customer to pay one-half the cost for the service he had received from the old. Another company three years ago guaranteed each customer that his tracks would last for three years. A year later the company went broke, that guarantee being about as valuable as an unused Sunday excursion ticket on Monday morning.

Now the farmer who finds a defective casting on his machine is inclined to call up the stock man and say: "Brown, that axle bracket is cracked, just ready to bust out. Looks like a piece of black Swiss cheese. Send me another free of charge."

Ten to one the stock man says, "Mr. Jones, I'm sending another bracket right out, but I've got to collect for it. Now you send back the old one; we'll have it looked over and post a credit to you for the right adjustment."

And a hundred to one, Mr. Jones gnaws his lower lip and feels that he's being held up, called a liar and classified as stupid.

THE OTHER SIDE

But listen to the tractor man's side: In the first place, there are mighty good reasons why the factory wants to get hold of that old part, and if the new one simply is sent out free they'll never quite get Mr. Jones to go to the trouble of shipping back the defective material. He'll promise, he'll really mean to, but it isn't once in a score of times that it will ever leave the ranch. So they charge him for the new one, not through arrogance, nor as a profiteer, but simply because it is a fair business expedient to get hold of that piece of scrap.

Here's why they want it—need it: First, a careful examination will show factory experts the cause of the failure and may lead to remedial measures. The wrong grade of steel may have been used, the casting may be too light, the bolt hole set too near the outside, a core may have slipped—many things can happen that only the actual possession of the broken part can determine; second, the part may have come from a third party, an outside foundry, an accessory manufacturer; and it must be sent on for the factory to secure the adjustment that is eventually passed on to Mr. Jones. Maybe Stock-man Brown is willing to take Mr. Jones' word; perhaps the factory relies implicitly on Stock-man Brown—but the foundry never heard of Brown and Jones and doesn't want to; third, no manufacturer wants horrible examples of poor material on display even in friendly hands, nor does he wish it to fall into unfriendly hands. The manufacturers know, and rightly, that when they have made good the unavoidable mischances of manufacture, their prompt adjustment will have eclipsed the earlier mistakes.

Sometimes the tractor owner concludes that the factory is eager to obtain broken casting because of their scrap value. This is seldom true, and is never but the most unimportant of reasons.

## Who Pays Transportation?

MOST factories demand that the man who claims an adjustment shall prepay freight or express on goods returned for credit. To the writer this doesn't always seem fair, but it is a trade practice, and tractor prices are figured on a cost overhead that provide for this pre-payment.

And factories won't obligate themselves to pay for any labor necessary to remove old parts and install new. Whether or not that is quite fair is a question; but it seems to be a general rule. Base prices of tractors and of parts are fixed accordingly.

In other words, free delivery service is averaged in on tractor costs, but free labor in replacing poor parts is not.

One distributor got this telephone message the other day from a citrus grower: "I'm in a pickle. There's a crack in the crank case that leaks oil. It's getting worse. Seems a shame to junk it and demand a new one, because it really isn't serious yet, and may never get any worse. I believe a little job of welding or brazing will fix it, but I'm afraid that if I did that, and the thing finally went flooey, I'd get the door of the claims department slammed on my nose. How about it?"

He was advised to have the nearest commercial photographer take a view of the cracked case, then to fix it up by welding. The picture showing the location and character of the failure, was sent to the factory, as was the bill of the photographer and welder. They were small, were promptly allowed and paid, and a valuable casting saved—for it is still at work!

EVERYBODY SATISFIED

Now, if the attempt to repair had failed, the farmer would have been thoroughly protected in his final claim. The work of the welder would not have invalidated it, because the factory had all the facts and the proof.

It is safe to say that unsatisfactory adjustments are due 99 times out of 100 to the lack of facts. A claimant can't tell too much—the serial number of his machine, how long he has had it, the kind of work on which it is used, the identification of the part that failed, the apparent cause of same and as much additional data as he can obtain.

Cheerfulness and promptness on the part of the tractor owner are sure to be met with courtesy and an eagerness to make things right.

But—A Sassy Letter Butters No Parsnips!

—Illustration, Courtesy J. I. Case T. M. Co.

*This Ranch Buys 'Em in Fleets*

*Suppose you were a tractor dealer and a ranch owner called up and said: "Send me over another dozen of those 'Fifteen-Twenty Sevens'"—wouldn't you pinch yourself to see if you were dreaming? However, that's the way the Forkner Fig Garden Co. buys tractors. And here's the evidence right out in the orchards near Fresno. Twelve, count 'em—12.*

## Home Made Cement

[illegible] cement for iron [illegible] kind, mix equal [illegible] and salt, with enough cold water to make a paste. To renew an old file, thoroughly clean with a brush and apply nitric or soldering acid and allow to dry—Charles Collings, Petaluma, Cal. (H).

**Prince Albert's a new note in the joys of rolling 'em!**

Talking about rolling your own cigarettes, you've got a handful-of-happiness coming your direction when you pal it with Prince Albert and the makin's papers! For P. A. is not only delightful to your taste and pleasing in its refreshing aroma, but our exclusive patented process frees it from bite and parch! You smoke P. A. with the bars down!

And, for a fact, rolling up Prince Albert is mighty easy! P. A. is crimp cut and stays put and you whisk it into shape before you can count three! And, the next instant you're puffing away to beat the band!

Prince Albert is so good that it has led four men to smoke jimmy pipes where one was smoked before! It's the greatest old buddy-smoke that ever found its way into a pipe or cigarette! And you'll o. k. that say so!

*Prince Albert is sold in toppy red bags, tidy red tins, handsome pound and half pound tin humidors and in the pound crystal glass humidor with sponge moistener top.*

PRINCE ALBERT

*the national joy smoke*

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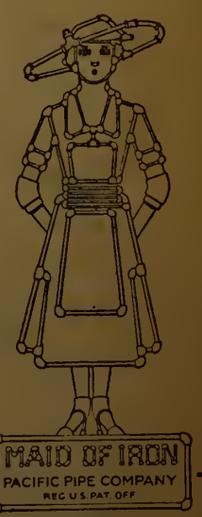


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229 Howard St. San Francisco.

# High Lights of Motor Laws

By Willard G. Cram

SOME motorists are distinguished by that expensive sucking sound of six-inch tires, while others are recognized by a peculiar rattle, the volume and variety of which depend upon the model. But we've

Trucks to the left of us—
Flivvers to right of us—
Highways are black with them,
Speeding or crawling.

In short, everybody's doing it, and it is up to all of us to know our rights as well as our liabilities.

Every car owner must have up-to-date license plates correctly displayed in front and rear of the car. With the two plates for license numbers is furnished also a certificate of registration, which must be attached to the vehicle. Upon transfer of ownership the original registered owner must join with the purchaser in making a statement of change of ownership, which must be sent within ten days to the motor vehicle department or one of its authorized agents, with proper fee.

RULES FOR LIGHTS

When the natural light is not sufficient to reveal persons, objects and vehicles on the highway for a distance of at least 200 feet, and at all times from one half hour after sunset to one half hour before sunrise vehicles shall carry the necessary white and red lights. These lights must measure up to certain requirements and stand certain tests if demanded.

FOR HOME BREWERS

No person shall drive a car while intoxicated, being liable for heavy penal statute covering imprisonment, if found guilty.

RULES OF THE ROAD

When it is practicable, the driver must keep to the right side of the road. He shall at all times drive in a careful and considerate manner with due regard to the safety of pedestrians and traffic.

Two cars passing each other shall have the right of way and none at the rear shall attempt to pass them.

If the road on the left side is clear and unobstructed for at least 100 yards, the driver may leave the right hand side of the road and travel on the left hand side.

In passing vehicles preceding in opposite directions each shall go to the right, giving one-half the road, as nearly as possible.

In overtaking, pass to the left, and do not drive to the right until clear. On suitable signal the vehicle being overtaken shall give way.

Except where traffic ordinances or regulations vary, a vehicle approaching from the right shall have the right of way at intersection of paths, unless the said vehicle is further away from the point of intersection than the other.

IN MAKING TURNS

The driver in approaching an intersection of a highway with intent of turning shall in turning to the right, keep to the right of the center of the intersection, and in turning to the left, run beyond the center of the intersection, passing to the right thereof, before turning the vehicle to the left.

In passing horse drawn vehicles due and suitable precautions must be taken and motor vehicle must be slowed down or stopped, if necessary, for safety of the persons riding or driving the horse.

*Laws the Motorist Should Know*

*WHETHER you drive a "Tin Lizzie" or a "Cost-o-mobile," you are subject to the regulations of the State Motor Vehicle Act. Yet there exists surprising ignorance of the simple laws of the road. Perhaps it is because we all hate to read dry legal phrases. Mr. Cram, however, has the happy faculty of sifting out all the excess "whereas's, parties of parts, hereuntos, and wherefores," so that his explanations are both interesting and understandable to the layman. Read and heed his warning, and perhaps it may save you expense or even injury.*

Do not pass or overtake any vehicle going in the same direction at any street intersection unless so directed by a traffic officer.

Give due arm signals before turning, stopping or changing your course. In general, a straight arm signal means left hand turn; arm raised upward means right hand turn; arm down means "stop."

In passing street cars while persons are alighting therefrom, keep speed down to ten miles per hour, and keep a clearance of at least six feet from the street car. But all local city and town traffic rules and regulations as to this matter must be observed, and if any safety zones are marked they must be strictly observed.

Also local parking rules as to times, and places and manner of parking must be observed.

In motoring in towns and cities the speed should be carefully regulated, and car kept under full control.

In moving through defiles, canyons, etc., where the highway is curved and the view is obstructed for a distance of 100 yards, the car must be kept under control and allowed to coast, and proper audible signals shall be made.

Do not have overhanging loads on left side of vehicle on running board.

In repairing vehicle, get it off the highway, especially if it is not so disabled that it can not be moved.

Above all, operate your car in a careful and prudent manner, so that the life of no person shall be endangered. This will depend upon the conditions and circumstances; what might be prudent driving in one place would be very imprudent in another. Thirty miles per hour might be prudent at one place and ten might be highly imprudent at another.

There is a doctrine in damage cases, called the Last Clear Chance, which means that though another may be in the wrong, the person who has the last clear chance to avoid an accident or injury must exercise this chance. "Road hogs" and stubborn drivers too often have caused injury and serious discomfort by refusing to avoid an accident due perhaps to another's error.

Most of the violations of the motor vehicle laws carry penalties of a fine of not exceeding five hundred dollars or imprisonment in the county jail not exceeding six months, or both such fine and imprisonment.

SUIT MAY BE EXPENSIVE

Aside from the penal statutes, the driver who is in the wrong in a collision may suffer heavy damages if he is sued and the case goes against him.

One in a collision should take the name of the driver and owner of the car, license number, etc., and should render all humane and adequate assistance to the injured persons even thought the one injured may be in the wrong.

Drivers constantly are being tried for manslaughter for reckless driving and frequently convicted because they leave their victims without stopping and rendering assistance.

The Golden Rule will work on the highway as well as it worked on the road to Jerico. The one who shows the courtesies of the road usually gets an echo from the majority of drivers.

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## Rhodes Grass

(The following communication is from Mr. H. L. Musser, president Aggeler & Musser Seed Co., Los Angeles.—Editor.)

DUE to our advertisement in your columns we are having numerous inquiries concerning Rhodes grass. It is quite a burden to answer each of them individually, and if you will kindly give space to the following it should answer many of the questions of your subscribers.

We are recommending it chiefly for alkali soil; it will grow luxuriantly on such soil and is more valuable than any other grass grown under similar conditions. We are informed, however, that Rhodes grass grown on other soil is more palatable than that produced on alkali soil, but that does not in the least detract from the value of Rhodes grass as a permanent pasture for alkali soil.

It will smother out Bermuda grass, salt grass or other alkali weeds. It converts practically waste land into valuable pasture land. We do not recommend it, however, where alfalfa can be grown successfully.

### RATE OF SEEDING

It requires about eight to twelve pounds of seed to plant an acre. If you can get one plant to the square yard it will not be long until the entire field is covered. This seed should be sown on moist soil and the soil kept moist until the grass has become established, after which it will endure considerable drought and need no further attention. It may be flooded or irrigated without taking the stock off of it; the more the stock trample it the more they will improve it.

### TIME OF PLANTING

The proper time to plant is during the month of May and as late as the middle of August. A grower in the Coachella Valley planted a field the latter part of August and it had just become thoroughly established when the extreme cold weather arrived. It survived the winter, and produced a luxuriant growth of pasture early the following spring.

On our demonstration plot we withheld irrigation from a number of grasses. The Rhodes grass was the last one to dry out and the first to recover when water was applied. The entire plot received no irrigation from the rainy season until the first of September.

### KILLS BERMUDA

If you have a field of Bermuda that you wish to get rid of, plant Rhodes grass. It will give you more pasture and equally as good as Bermuda grass. In places where there is liable to be considerable frost, we suggest that a growth of six or eight inches be allowed to remain in order to protect the roots and crowns from the extreme frost. In order to do this the field should not be pastured or cut later than October 1st.

Rhodes grass is in its prime the second season. The third year it should be thinned out with a spring-tooth harrow or a cultivator with one inch shovels set twelve inches apart.

## Use of Spreader With Spray

SPRAYING fruit trees is effective when the spray covers all parts of the tree so thoroughly that no insect can find a spot that is not protected by the poison mixture. To assure effective spraying, the necessity of using a "spreader" in the spray mixture is becoming very generally recognized in Pacific Coast States.

After tests conducted by several of the State Agricultural Colleges where various substances were tried, it was found that Casein, a milk product, accomplished the desired result of [illegible] the spray over every part of the tree.

[illegible] to which a spreader has [illegible] finally met as a smooth, [illegible] covering, affording [illegible] and perfect protection [illegible] surface" says Professor [illegible] in Entomology in the Oregon Agricultural College Experiment Station.

[illegible] by Professor Lovett and published by the Oregon Agricultural College, a study is presented of the various substances in use as spreaders, and is pronounced very efficient.

A prepared Casein spreader, the composition of which has been found satisfactory in various tests is now on the market. Without a spreader, the Arsenate-of-Lead solution, when allowed to stand in a glass overnight, may be readily seen to have settled, the white solids being deposited at the bottom of the glass with an almost clear liquid above. When the prepared casein spreader is used, however, the solution will be found an even milk-white, even after it has been allowed to stand several days.

Speaking of the casein-lime mixture, Professor Lovett says: "The very nature of this material, its cheapness, the small amount required and the apparently desirable quality have led us to give this first rank in our subsequent study of spreaders."

One advantage of the prepared casein, used as a spreader, is that it can be sifted dry, directly into the spray tank, and requires no cooking. "Casein has an advantage in cheapness, availability, compatibility in most spray solutions, and ease in preparation," says Professor Lovett. "It is our conviction that most of the standard sprays will be materially improved by the use of spreaders. Their use is particularly advisable in the summer application of arsenate for the coddling-moth."

Without the use of a spreader, the spray dries on the leaves and fruit in white blotches, leaving intervening areas unprotected. Where the spreader is used, the covering is even over every part of the tree, assuring a perfect protection.

In Bulletin No. 169 of the Oregon Agricultural College appears the following paragraph:

"Use of Spreaders—The use of a spreader in the poison spray solution accomplishes a number of desirable things. By increasing the wetting and covering powers of the solution it permits us to reduce the amount of arsenic necessary for protection. By permitting a more uniform covering over the surface and increasing the adhesiveness, it affords a better protection from worms. Finally, allowing the spray to dry as a smooth, even covering over the surface affords an inconspicuous coating of the mature fruit."

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# MOLASSES

**"I have been feeding Cane Molasses for years"**

**Writes Mr. H. L. Wakeham of Santa Ana.**

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# Timely Citrus Notes

By Robert W. Hodgson

## Happenings at Whittier Institute

THE biggest activities of the year for citrus growers. Such were the Citrus Institute and the Fourth Annual Fumigation and Pest Control School held at Whittier on Friday and Saturday, June 24 and 25th. At the Citrus Institute no fewer than 350 persons were in attendance, and on Saturday at the Fumigation School it is estimated that 500 persons were present.

Robert W. Hodgson

The main subject of the Institute program was that of reducing costs of production, the various factors entering into this important problem being discussed by the best-posted men in the business.

A feature of the day was a splendid address delivered by President C. C. Teague of the California Fruit Growers' Exchange, who discussed the effect of high fruit rates on the citrus industry and reviewed the work which the California Citrus League has been doing in an effort to have freight rates reduced.

### REDUCING PRODUCTION COSTS

The big lesson of the day emphasized the importance of high yields per acre, reducing "per box" costs of production, as against purely arbitrary reductions in per acre costs. It was pointed out that frequently it pays better to spend more money for the care of the orchard, thereby increasing the yield and decreasing the individual cost per box, than to cut down on essentials and greatly decrease the yield.

A feature of the program was the banquet held at the Woman's Club house at which more than 100 persons were present, following which Mr. G. Harold Powell, General Manager of the California Fruit Growers' Exchange, delivered a splendid address, pointing out the unique situation which the citrus and walnut industries now occupy, as contrasted with practically every other important branch of agriculture, and showing how this position is due entirely to intelligent merchandising methods, whereby the associations are financing the distribution of their own products, instead of calling on buyers to do this for them.

## Latest Fumigation Methods

AN OUTSTANDING feature of the Fumigation and Pest Control School was the frank admission by growers, fumigators, and investigators of unsatisfactory results secured with the liquid gas methods of fumigation, particularly in the San Gabriel and Pomona Valleys. It was freely stated that in these districts ,at least 50 per cent of the growers are demanding a return to the pot and cyanofumer methods, and many of the fumigators are expecting to use all three methods this coming season.

Considerable discussion as to the reason for the poor results secured with the liquid gas method, indicated that some of the difficulty has been due to faulty methods of application, but it was generally agreed that much of it is undoubtedly due to an increase in resistance to "H. C. N." on the part of the black scale in this district.

### GAS PROOF TENT

The gas-tight tent which makes it possible to secure as good a kill with one-third the amount of cyanide now used with the ordinary canvas tent, was heralded as the greatest advance of the year, and it was prophesied that this would be the solution of the problem of handling specially-resistant scales. A new development in liquid gas applications was announced; one in which the liquid gas is vaporized by heating, before being discharged into the tent.

The general recommendations of the speakers were to the effect that the liquid gas method is a distinct step in advance of all others, but should be used at temperatures above 50 degrees, taking special precautions to "tramp the tents in" well. At temperatures below 50 degrees, however, the use of the improved applicator or cyanofumer was recommended. It is expected that by the opening of the fumigating season, a satisfactory process will have been worked out, whereby the canvas tents now in use, may be so treated as to be rendered gas tight.

## Spraying "Dope"

HORTICULTURAL COMMISSIONER RYAN reported the chances for satisfactory control of scales by fumigation to be about four out of five by spraying only one in five. Further, the use of arsenical scalecides was cautioned against, on account of the decrease in the acid content of the fruit, although it was admitted that some cases of fairly good scale control had followed the use of sprays containing arsenic.

## Using "Friendly" Insects

THE use of predatory insects in holding scale in control, was discussed at length by H. M. Armitage of the State Insectary, who reported that the Limoneira Company of Santa Paula, is so firmly convinced of the efficacy of this method that its officials have decided to abandon fumigation. For the coast districts, where considerable off-hatch scale occurs, the Aphyers parasite from South Africa was declared to be an unqualified success—where the Argentine ant is held under control. Methods of rearing the Aphycus parasites in large numbers for liberation in the interior valleys in early summer, are now being worked out.

## Red Spider

THE latest information on the red spider liberation, was to the effect that in the Coast districts, natural control by means of predatory insects, is not only possible, but, in fact, the only satisfactory method, particularly where fumigation is not practiced; it has been definitely shown, in fact, that fumigation destroys the native "predators," but not the spider.

For interior districts, winter control by means of a cresolis oil spray, which kills both eggs and adults, was recommended. It was generally admitted that where annual fumigation is practiced, it is almost impossible to effect a satisfactory summer kill.

Liquid lime-sulphur in strengths of from one to three per cent, as well as the dry sulphur under favorable conditions, dispose of the adults, but do not get the eggs. At the same time they destroy the "predators," the result being that each spraying or dusting is followed with a worse infestation than before, a condition to which many growers agreed.

The recommendation was to regulate summer treatment with reference to the presence or absence of the natural "predators," and the amount of injury being done.

It was stated that controlling the Argentine ant encourages the presence of the "predators." However, both growers and investigators agreed that there is still much to be learned concerning the control of red spider, which is stated by many to be second only in destructiveness to the black scale.

## Standardization Goes Forward

THE Legislature which adjourned recently, passed some splendid agricultural legislation, and Governor Stephens in approving of this class of legislation proved himself a real friend of the farmer.

Consolidation of boards and commissions, which resulted in the creation of the present State Department of Agriculture, proved to be a great forward movement for better agricultural support, and farming, the basic industry, is coming to its own in California as never before.

One great forward step that affects the fruit and vegetable growers is that which by amendment of the fresh fruit standardization law of 1919, places the State Director of Agriculture in full control of standardization work. In years past there has been lack of uniformity in methods and results, due to each County Horticultural Commissioner planning and executing his own program without the necessity of conforming with that of other counties.

Under the new law, the State Director of Agriculture is empowered, to quote from the act, *"through his duly authorized agents, and the county horticultural commissioners of each county of the State, their deputies and inspectors, to enforce all the provisions of this act. The director of agriculture shall have supervision and control over all enforcing officers of this act in the State of California. The refusal of any officer to carry out the orders and directions of the director of agriculture in the enforcement of this act shall be deemed neglect of duty."*

### A VALUABLE ASSET

Nothing has done more than a good, honest, well-prepared pack in extending the reputation of California's wonderful fruits. Gradually there have been developed certain laws and a system of inspection which in the future will be of great benefit to our horticultural industry. State Director of Agriculture Hecke is to be commended for his determined effort to place this work on a high plane. That success will attend this effort seems now assured.—G. P. W.

## An Orchard Hint

TO avoid scarring the bark of trees when using a drag harrow in an orchard, on sloping ground, cut suitable lengths from an old tire and wire then tightly over all projecting nuts and corners. Bicycle tires, if split open, may be used to cover the whole length of the sides of a harrow, sewing the two edges together.—Hugh V. Harris, Sebastopol, Cal. (H).

## Seedlings and Budding

WHERE can I secure peach pits and apple seeds for planting? When is the proper time to bud and where can I get budding wax?—Mrs. J. B. Jones, Dunan, Ariz.

### REPLY BY GEORGE P. WELDON

Peach pits for growing seedling peaches may be purchased from practically any cannery putting up this fruit.

In California the pits are bedded down in suitable trenches about the middle of October. These trenches usually are about twelve inches deep and the process of bedding down the pits is as follows: Alternate a thin layer of pits with a sufficient layer of sand or light soil to cover, until the trench is full. About the middle of February a considerable number of these pits should be split open and some may have sprouted. They are then put in nursery rows where the seedling trees are grown. These will be large enough to bud the following August or September. When budding insert a single bud, taken from one-year-old wood of the grafted variety, in a T-shaped slit made about two inches above the ground. The buds are not waxed in but are tied with cotton twine. The buds, if properly inserted, will unite in two or three weeks when the twine with which they were tied should be cut so that it will not injure the tree. The following spring remove the seedling top with shears or a knife, just above the bud which should very shortly become active and form a trunk for the budded tree. Grafting wax, used in grafting where scions are inserted in the cleft, may be purchased


# THOUGHT FOR FOOD

In food production, just as much as in any other industry, the man who succeeds is the one who gives intelligent thought and consideration to each of his individual problems.

This is the reason why so many of the prosperous farmers and ranchers of California have solved their irrigation problems by the installation of

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**CANNOT EXIST**

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I want every sufferer from any form of muscular and sub-acute (swelling at the joints) rheumatism, to try the great value of my improved "Home Treatment" for its remarkable healing power. Don't send a cent; simply mail your name and address, and I will send it free to try. After you have used it, and it has proven itself to be that long-looked-for means of getting rid of such forms of rheumatism, you may send the price of it, One Dollar, but understand I do not want your money unless you are perfectly satisfied to send it. Isn't that fair? Why suffer any longer, when relief is thus offered you free? Don't delay. Write today.

Mark H. Jackson, No. 395G Durston Bldg., Syracuse, N. Y.

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## Rhodes Grass

The following extract is from the U. S. Department of Agriculture Bulletin 1048:
Rhodes Grass was first cultivated because of its pasture value. It bears trampling well, recovers quickly after it is eaten down, and is relished by all kinds of livestock. In pastures favorably located, Rhodes Grass will support about two steers to the acre for 9 to 10 months and double that number during the more favorable parts of the year. The quality of hay made from Rhodes Grass is superior to that of most other grasses in that it contains a larger proportion of leaves, while the stems are slender, tender and sweet, so that the hay is eaten with very little waste. It retains its color well in drying, therefore making an attractive bale for market. Rhodes Grass will grow in alkaline soils where no other grass will grow.
Mr. L. O. Crummer, Brawley, Calif., has ten acres in Rhodes Grass, on which he has kept 400 hogs, 10 mules, 3 cows, besides having two large stacks of hay on hand, cut from his field. He recommends it very highly.
Gus Nellen, Gen. Del., El Centro, has about 8½ acres in Rhodes, on which he has kept 20 milk cows, also some hogs, and has about 12 tons hay left from the last year. His place was covered with Bermuda, so he just broadcasted the Rhodes Grass Seed and turned the water in slowly and kept the place moist, and before long the Rhodes had the Berumda choked out. Another advantage is that he can keep the cattle on it while irrigating, for it isn't hurt by being trampled on, for whenever the runners are trampled into the ground, they start to grow.

He also recommends it highly for hog pasture, as they like it very much and do well on it.

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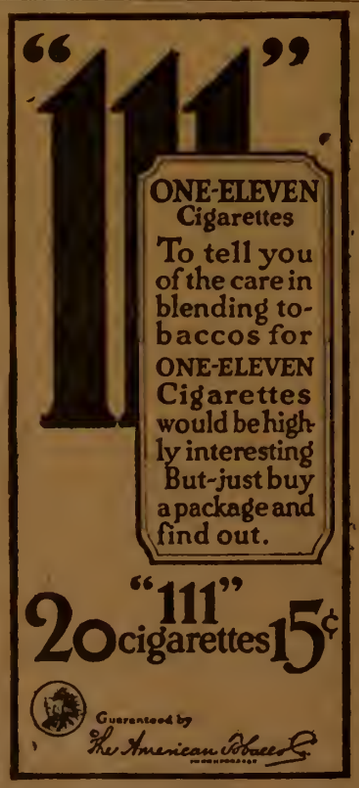




In answering ads please mention ORCHARD and FARM

# Poultry Pointers in Season

By F. E. La Shelle Jr.

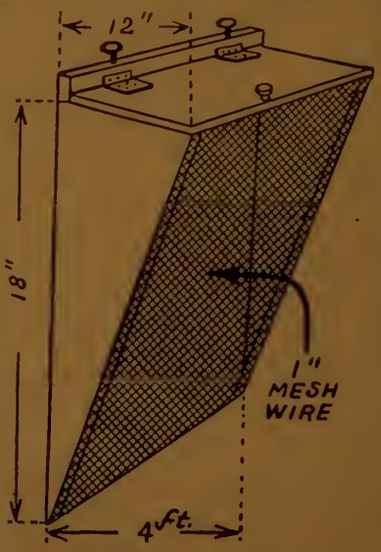
WRITTEN FOR ORCHARD AND FARM, COURTESY SPERRY FLOUR CO.

## Fresh Green Feed

ONE of the many summer problems confronting the poultryman is to keep the green feed from wilting or drying before it is all consumed. If the greens are kept from wilting, it is possible to use every bit of the feed that has been cut, and waste is eliminated. Some feeders, however, still throw the green stuff on the ground and allow the sun and birds to waste it.

Mr. La Shelle

An economical green feed hopper can be constructed out of scrap lumber and one-inch mesh poultry netting. Cut two pieces of wood having the shape of right-angle triangles, the short side of the triangles to be about twelve inches long, and the long sides of the triangles to be 18 inches each.




These are the ends of the hopper. The short side is to be used as the top. Nail three strips of wood each four feet long at each corner of the end pieces, tieing the corresponding corners of the hoppers, making a rigid frame.

To the hypotenuses of the triangles tack a piece of one-inch mesh wire. A solid cover made from a piece of wood, one inch by twelve inches by four feet can be laid on the twelve inch top.

Hook this frame to the wall with the bottom of the hopper 12 inches from the floor. The wall will form the back of the hopper, thus saving material that would otherwise have to be used for this purpose. Chopped greens can be placed in this hopper and the fowls can pick the feed through the one inch mesh wire. The feed will be kept fresh and the birds cannot waste it. The material will work down by gravity as the birds consume it. Do not hook to a wall that is exposed to the rays of the sun, as this will cause the feed to sweat.

Being a portable hopper it can be easily removed for cleaning or changed to another pen. The feeder will have to use his judgment as to how many fowls can use this device.

## Feed Cost in Eggs

DO YOU know the per cent of egg production necessary to pay your poultry feed bill? On the average, sixty cents of every dollar the poultryman spends on his poultry goes for feed.

It is necessary, first of all, for the feeder to know accurately how many laying hirds he is feeding. If he guesses the number of birds being fed, he is not giving his birds the proper credit for their work. Know how much feed is being consumed by the flock, the daily production, the prices of feed and eggs. Then you are ready to begin your computations. The results of your figures will give you an idea as to whether you are operating at a profit or loss. It will also give you an idea as to what steps to take in culling during the summer months.

If better business methods were applied by poultry keepers, fewer losses would be sustained. The need of careful management has been emphasized by the abnormally low price of eggs this season. The production necessary to pay for the feed will vary with the locality, and therefore, each breeder should work out his own cost.

Example:
Cost of feed for 1 hen one month. .18
Average value of one egg . . . . . .02
Number of eggs necessary to pay for feed. . . . . 9
Per cent production 9-30x100% = 30%
(The figure "30" represents a 30-day month.)

Therefore, if the feed costs 18 cents for a 30-day month, and the eggs were averaging 2 cents net each to the producer, nine eggs would pay for the feed. For a 30-day month the production would be 30 per cent.

## How to Keep Sweet Potatoes

MANY growers have trouble keeping sweet potatoes for any length of time. However, I have found the following method satisfactory even in keeping white yams, which many claim are difficult to preserve:

Select a sheltered spot, preferably the south side of a building or fence. A space about five feet in diameter will be necessary for eight or ten bushels of potatoes. Dig a shallow trench around the space, throwing the dirt inside the circle, in order to raise the surface two or three inches. Provide the trench with an outlet so that no water will stand in it.

Dig the potatoes in the forenoon on a warm day and allow them to dry off before picking up. Separate the cut or bruised potatoes for immediate use. Pile the good potatoes solidly on the spot, first scattering about two quarts of dry, air-slaked lime on the ground. When the pile is eight inches high, sprinkle another quart of lime over it, and continue until the pile is complete, using enough lime thoroughly to dust the potatoes.

Fill burlap sacks half full of dry sawdust or shavings, and cover the pile. There should be a thickness of from four to six inches. Over this put tarred paper or roofing to make it rainproof. Uncover at the end of two weeks and allow moisture to evaporate, recovering before potatoes get chilled. In order satisfactorily to keep sweet potatoes, one should never allow the temperature to be lower than 60 degrees F., and should keep the tubers dry.—Howard Bacon, San Gabriel, Calif. (11).

## Advice to Gardeners

AVOID fakes and foolish novelties, such as building up a potato pen 6 or 8 feet square and 8 feet high using 6-inch boards, nailed 4 inches apart with potatoes growing out of all cracks on all four sides and the top supposedly yielding fabulous amounts. Thousands "bit" on that one and thousands more on the "New Guinea Butter Bean" fake. The old "Creole Hercules Gourd" was called a bean. Seed that could be bought on the open market for 40 cents a pound was sold through the mail at 6 seeds for 25 cents, which was at the rate of about $150 a pound, a nice little profit!—C. L. S.

## Starting the Game

(Continued from Page 5)

[illegible] the little coaster delivered at the [illegible] an assortment of bundles and [illegible] containing the berry stock, des[illegible] I hoped, to rehabilitate my shat[illegible] fortune. It gave me the cold [illegible] to see my poor little fund melt [illegible] for in my despondent moments [illegible] myself that something was sure [illegible] wrong; but I had put my hand [illegible] the plow, literally, and could not [illegible] back.

[illegible] had my ground in perfect condi[illegible] for the planting and had divided [illegible] to meet the requirements of the [illegible] kinds of stock, which con[illegible] of several varieties of straw[illegible], raspberries and blackberries, [illegible] the planting went on without [illegible] delay. Because of the mild [illegible] and lack of frost, there was [illegible] weather to contend with. Fall [illegible] as soon as the early rains [illegible] put the ground in condition, was [illegible] proper thing; thus the stock had [illegible] the wet winter season in which to [illegible] rooted and in good condition for [illegible] spring growth.

The winter chanced to be unusually [illegible] and I watched with much anx[illegible] the overflow from my spring. [illegible] the water as had been pre[illegible], prove a destructive element and [illegible] my whole investment? But [illegible] drain, though it ran full at times, [illegible] care of the overflow and there [illegible] no washing of soil. At the first [illegible] of spring, however, there [illegible] the most astonishing growth of [illegible] all over the ground. There [illegible] a million roots yet in the soil, [illegible] from the clearing, and every one [illegible] active. I thought, however, [illegible] soil as ambitious to produce wild [illegible] would do wonders with its am[illegible] properly directed—and in short [illegible] did.

The strawberry plants that first [illegible] yielded a small crop of berries. I [illegible] realized these would be in greater [illegible] than other kinds, and so had [illegible] one-half of my available [illegible] to the several varieties in order [illegible] I might learn which would give [illegible] best results.

Many had "encouraged" me by say[illegible] that strawberries so near the [illegible] could not be grown successfully. [illegible] I had noticed that when the local [illegible] shipped in a chest of these ber[illegible], people would go "on the run" to [illegible] a first helping, and I was de[illegible] to give them a trial—planting [illegible] kinds to make sure.

[illegible] that summer I fought weeds and [illegible] growth of brush; kept the [illegible] well cultivated, and was repaid [illegible] uraging growth of the vines.

[illegible] second winter everything went [illegible] mishap and in the spring [illegible] promise of a good crop from [illegible] varieties.

[illegible] and cultivating processes [illegible] continuous performance, but [illegible] growth of foliage and mass of [illegible] then repaid me. I had [illegible] for several farm journals, [illegible] myself as fully as [illegible] the details of the [illegible] always been my idea [illegible] fit himself by ob[illegible] for the handling of any new enterprise he could not possibly expect any great measure of success.

Before my crop was ripe this first year, unsolicited orders began to come in from the lumber town on the north, the near-by town south, and all down the line between. Everyone wanted berries, and they never even asked what the price would be. Storekeepers wanted to carry a supply, and my berry field looked infinitessimally small, as I viewed with almost consternation the ever-increasing demand. Strawberries were most wanted, hut other kinds were nearly always accepted.

I have no itemized list of figures, showing exact returns from my first year's crop, but I remember distinctly there was $400 to my credit in the bank at the end of the season. Some of my ground had not been planted, but that fall I had it put in condition and from that time to the present

(Continued on Page 31)

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Briefly the qualifications of the SIMPLEX SILO are summed up in the words of the agricultural experts who pronounce it "scientifically correct."

*It will actually mean money in your pocket to know the details regarding the Simplex Silo—whether you intend to buy now or later. Let us tell you about the Simplex, and the 25 per cent reduction in price. The coupon will bring this information promptly. Mail it now.*

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SANTA FE LUMBER CO., 16 California St., San Francisco, Dept. A.

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First Pen International California Egg-laying Contest, Santa Cruz, Calif.
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Home Flock Average, 221 Eggs; Highest Large Flock Average Known.
We are selling reasonable, vigorous high pedigreed Cockerels & Breeding Hens.
HANSON'S POULTRY FARM, Corvallis, Ore.


# The Valley of Surprise

(Continued from Page 10)

Drouth is the one great enemy of the Surprise Valley. Although the annual rainfall is about 14 inches, some years less than half that amount of moisture falls. In one year there was no rain after the middle of April. It is difficult to judge of the value of the land because of the variation in subsoil moisture, which cannot always be determined by surface indications. The writer has seen fall wheat on rich, black land near Middle Lake dry up and die when only large enough to make good pasture, while similar grain near the mountains made half a crop.

RYE GRASS VALUABLE

Giant rye grass is a native of the country and a most valuable forage plant, which has been largely killed out. Only a small quantity of seed is available and retails at $1.00 per pound, being very light—something like bluegrass seed.

There are wild meadows south and east of the Surprise Valley where Indians sometimes can be induced to gather the seed by hand for as little as 15c per pound.

This plant should not be confused with Italian or wild rye grass, being an entirely distinct species and little known outside of this locality. It is very deep-rooted and takes about as long to become established as alfalfa, and resists drouth in a most remarkable manner. During the dry year above mentioned I saw it attain a height of five feet without artificial watering. Under favorable conditions it sometimes grows as high as a man on horseback. The stalks are coarse, but quite nutritious and make good hay when cut at the proper season. No other forage plant apparently makes such a growth on dry, rocky ground in a cold country.

Cedarville is the principal town in the Surprise Valley and is connected by an excellent state highway with Alturas, county seat of Modoc, 25 miles west. Trucks charge one-half cent per pound for hauling most kinds of freight during the summer season and up to 2c when the roads are at worst. This makes merchandise a little high, although flour, meat, butter, eggs, fruits, vegetables, lumber and fuel are produced locally and sell as cheap as in most places.

Although the population of Cedarville is only about 400, there were nearly 1200 persons present at a recent chautauqua entertainment, the manager of which said that they ran-

*The Old and the New*

*Surprise Valley cattle in from the range. Below, a farmer in the valley, giving his mules a surprise as he breaks ground with his new iron steed.*

ly met with as hearty a response in any of the Western States as in the Surprise Valley.

And thus I might enumerate many more surprising factors, not the least of which is the fine class of people who make their homes in this remote region.

Culture, refinement and Christianity combine to justify the self respect of many of these "fine folks", and all classes appreciate these desirable qualities.

## Valley Fair to Be a Great Event

OFFICIALLY endorsed by the Los Angeles Chamber of Commerce, making it the only Los Angeles County Fair for 1921, the San Fernando Valley Fair to be held at the town of San Fernando, September 13-18, promises to be the most complete event of the kind ever held in Southern California.

The official endorsement was secured by a committee of the most prominent men of the Valley, including Alfred Brant, M. H. Adamson, J. H. Fulcher, Alec Jeffries and the director of the Fair, E. R. Elkins.

MANY DEPARTMENTS

That the Valley Fair will be worthy of this official recognition is evidenced by the fact that it will include in addition to the regular features, such as departments of agriculture, horticulture, citriculture, livestock, domestic science and industrial exhibits, such unusual attractions as a gigantic working tractor demonstration, a western horse show and the only official American Poultry Association Show to be held in California this year.

The tractor department, working on the theory that a field demonstration is more satisfactory and interesting than a "still" show, reports applications for space insuring a greater event than anything of its kind ever held in Southern California.

NEW TRACTORS COMING

Many tractors that heretofore have not been entered on demonstration fields will compete, while a number of surprises are promised in the shape of new and improved machines never before shown.

The horse show and livestock department will include entries from all parts of the Pacific Coast, according to the management. Some idea of the importance of the Fair may be gained from the fact that the premium list just published, offers cash awards between $20,000 and $30,000, to be paid immediately upon the completion of the work of the judges.

In the advertising columns of this issue will be found an important announcement with respect to entries in the Fair. Those desiring to enter should get in touch with the San Fernando Valley Fair, Chamber of Commerce Building, Los Angeles. Remember the date: September 13-18.

## Farm Photography

(Continued from Page 5)

...era and all the pictures were con-...cated when I left for the front.

...pon my return to civilian life I de-...ed to buy a larger camera so that ... could use it in my studies at the ...niversity Farm School at Davis, at ...hich place I was to spend my third ...ar of University work in the Col-...ge of Agriculture. After much dis-...ussion and thought I purchased a 4x5 "Graphic" with an "R-R-8" lens, with ...utter speeds from one to 1-100 sec-...d and stops from 8 to 164. This ...utfit I decided would be just the ...hing for taking livestock pictures.

After I had been at Davis a couple ...f months, a number of the students decided to promote the taking of pic-...tures around the farm by holding a ...ontest. In this contest I was fortu-...ate enough to win first prize with a ...icture of the new Gymnasium build-...ng, taken with my old Brownie "box," ...topped down to the smallest opening.

At the beginning of this last term a Kodak Club was formed to conduct contests and to promote farm pho-...ography. I was honored by being ...elected President of this club. One of ...ur first activities was to organize ...another contest. In this I placed sec-...nd with a picture of students study-...ng the construction of the new poul-...ry houses, taken with my new Graphic ...x5 camera, with a number 8 stop and ... 1-25 exposure.

Shortly after this, the Dean, who ...d taken an active interest in the ...ork done by members of the club, wrote to ORCHARD and FARM telling ...hem of the contests. The editor, Mr. ...nollin, answered immediately and ...ndly offered to help in all ways pos-...ible, since he realized from experience, ...s said, the great need of good farm ...ictures and the value of a camera to ...he average farmer.

He informed us that his magazine ...eceived many photographs which were ...ot suitable for reproduction, and wel-...omed any move which would en-...lighten the farmer and arouse his in-...terest in the taking of good pictures. ORCHARD and FARM offered prizes of $10.00, $5.00 and $2.50 to be awarded ...n the next contest, for the three best ...ictures of individual animals.

This contest was held just before ...he close of this last spring term. It ...as won with the accompanying pic-...ure of one of the Farm's high-testing ...Holstein cows. The second prize was ...on by Mr. Wise with the picture of ...he Shire mare, "Chessey," belonging ...o the Horse Barn, and being fitted for ...e picnic day Horse-Fitting Contest; ...e third prize by Mr. Hoppe, vice ...resident of the Kodak Club, with a ...icture of one of the University Farm ...ows.

### HOW PICTURE WAS MADE

The following are a few of the points ... took into consideration in the tak-...g of the prize picture: Having chosen ...y subject, the next important thing ...as to locate a suitable background. ...his usually can be found in an open ...ield, free from near fences, where ... back-line of the animal will be out-...ined against the sky, giving good "con-...ast," a very important thing, espe-...ially when "cuts" are to be made for ...lication.

It is well to remember, however, ...t white animals will not show up ...ngly against the sky and should ... taken against some dark object, ...h as shrubs or trees.

...y next step was to pose the cow. ... the dairy cow, one of the good ...tions is to have the animal stand ... the rear leg nearest the camera ...d back a little so as to show the ... development, the front legs be-...ther and the head erect, with ...ers pointed forward.

... better to take the animal with-... when she can be made to ... but I was unable to do this.

...d my 4x5 Graphic with a num-... and a 1-25 exposure on a ...y. This gave a slightly ...ative but by correct ... more detail may be ...h shadows with such ...h a weaker one. ... printing and


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## *and help save the building*

Winter rains and winds are coming! Protect your buildings where the weather strikes hardest—the roof!

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### *Preserves Shingles*

Drenching rains and whipping winds cause moisture and air to penetrate the fibre of unprotected shingles and cause disintegration and decay. The hot sun causes evaporation of the natural oils in the shingle fibre and cracking and warping occur. These results of exposure hasten the day when you must stand the cost of repairs or an entire new roof.

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Oronite Shingle Oil is a high-quality preservative especially prepared to protect shingles against exposure and the effect of the elements. It is used on side walls as well as on roofs. It penetrates the shingle fibre with a moisture-resisting preservative. It retards the evaporation of natural oils in the wood, prevents cracking and warping and gives longer life to the shingles.

Examine your shingle roofs *now*. Last winter was one of the heaviest in the experience of the Pacific Coast. Your shingles need attention. Put them in condition to stand up under next winter's weather. An application of Oronite Shingle Oil *now* will save your roof and help save your building.

Oronite Shingle Oil may be readily mixed with colors. Our nearest agent will be glad to give you formulas.

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(California)

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Gives a durable, smooth lubricating film under every pulling condition. Keeps the axle cool; no hot boxes, no gumming. The MICA makes it better.

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Preserves the original strength and life of leather and keeps it soft and pliable. Keeps harness "new looking."

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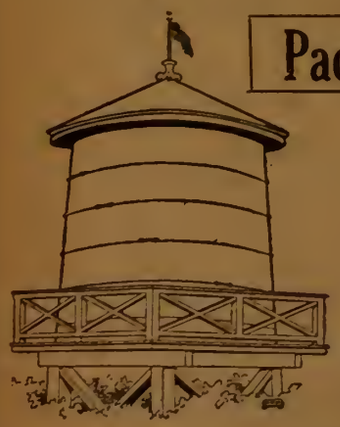

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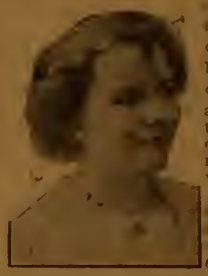
# YOUR GARDEN of FLOWERS

*by Helen Temple*

The hand and blood of the dead
Is [illegible] within!
And [illegible]
[illegible]
Mary E. [illegible]

## The Growing of Cactus

FEW California gardens are complete without a cactus bed. The size of the bed depends entirely upon the relative size of the garden and the number of varieties obtainable. It is advisable, where there are small children to surround the bed with a low fence. An effective border is a row of the low-growing cacti. In Ojai, California, an attractive border has been made of the so-called "Old Man Cactus." An adobe wall forms a background for the bed. The large cacti are planted in the back, with the smaller varieties in the foreground. The location chosen was a spot where the heat would not permit many of the more delicate plants to grow.



Helen Temple

The cactus flower is among the most delicately-colored and perfect flowers grown. The blossoms do not last, however, and often are called "day flowers." A few blooms brought into a lecture room recently, were beautiful and fresh early in the evening, but wilted before the lecture had been completed.

### SOIL AND CULTIVATION

A loose, gravelly or sandy soil is best for cactus. Avoid heavy soils. If the soil is heavy or sticky, dig out a bed and fill with coarse sand and leaf mold. The bed should be three or four feet deep, and the bottom covered with six or eight inches of stones or iron rubbish, with a layer of coarse manure. Fill in with the cactus soil, using one-half sand and one-half leaf mold or good garden loam. It is not always possible to obtain leaf mold, but a good garden loam, rich enough to supply food, will do as well, especially if a liberal amount of old manure is mixed into it.

These directions, if followed closely, will make failure almost impossible. It is often said that cacti will grow under any condition and do well in soil almost devoid of plant food. This is true, but they will grow and repay one a hundred times over for a little care and the proper preparation of their soil bed.

### ROOTING AND TRANSPLANTING

Make the cutting with a clean sharp knife, leaving the cut edge perfectly smooth. Sear the cut edge with a hot iron until it is dry and white. The iron must be hot enough to sear at touch.

The cutting box should be filled with coarse unsifted sand, over a third or more of drainage material, such as rocks and charcoal. Thoroughly dampen the sand and set the cutting, pressing the sand firmly about it. Place the cutting box in the sunshine for two or three days; then water if necessary. Do not keep the sand wet, but just moist enough to cause it to adhere to the fingers slightly. The cactus should be well rooted and sending out new spines at the end of the third week.

When transplanting cactus, cut off all dry and bruised roots. If the cactus is bruised, touch bruised spots with a searing iron. Often, when a plant is shipped, the roots and even the plant itself will arrive in a badly bruised condition. In this case, cut the roots off close to the plant, sear the edges and treat in the same manner as a cutting, until it becomes well established and is sending out new growth.

The "Crown of Thorns" is one of the oddest small cacti. It is easily grown out of doors but also makes a [illegible] that [illegible] in a sunny [illegible] it has bright green leaves [illegible] blossoms, and is easily trained to [illegible] in any shape. I have [illegible] cactl green in [illegible] and the [illegible] the leaves pushed into the earth [illegible] they took root.

The "Christmas" cactus is a [illegible] color-green variety. It grows [illegible] blooms with practically no [illegible] going several months without [illegible] The stems branch and are [illegible] with long, crimson flowers.

One of the most beautiful [illegible] blooms comes from the [illegible] cactus that blooms and [illegible] almost any condition provided [illegible] is good drainage. The [illegible] of the purest white as well as [illegible] most delicate pink, and are [illegible] fragrant.

Often the same variety will [illegible] flowers of different shades if the [illegible] mixtures are changed and the [illegible] tions are different. For instance [illegible] blossoms are brighter if planted [illegible] very hot location, and the [illegible] blossoms are both brighter if [illegible] iron scraps are placed at the [illegible] of the cactus bed. In a location [illegible] there is sun only half the day and [illegible] soil is half leaf mold it has been noted that the cactus blooms are [illegible] delicately colored and the [illegible] deeper green.

A mixed packet of seed will [illegible] dozen or more varieties at small [illegible] These may be secured from any of the large seed companies at prices ranging from 10 to 25 cents a packet. [illegible] fine, clean sand in shallow [illegible] Keep moist and cover with a [illegible] glass in a warm location. They [illegible] sprout within thirty days. Transplant to a larger box as soon as they are large enough to handle easily [illegible] then transplant from this box to [illegible] permanent bed as soon as they are well established and are strong [illegible] ing plants.

## What to Do in August

IN THE Coast and semi-tropical regions, August is the month [illegible] garded as the beginning of the [illegible] spring. Sowing and transplanting [illegible] winter flowers is begun. Often [illegible] general favorites are sown for [illegible] second time during this month [illegible] the interior regions, however, it is [illegible] warm to plant to any great extent [illegible] cept in the greenhouses.

In August roses should be prepared for their second full blooming season. A thorough irrigation, with a [illegible] amount of old manure spaded [illegible] the bushes, will start the new growth and by Thanksgiving there should be an abundance of roses.

Potting the tender plants may [illegible] during the latter part of the [illegible] where there is promise of an early fall.

A second crop of pansies should be sown.

Perennials and biennials planted [illegible] August or September will make strong growth during the latter [illegible] of the year, which will count as a [illegible] year, and will bloom the following year.

The followeng sowing and [illegible] planting suggestions apply to [illegible] semi-tropical and mild Coast regions. Sow verbenas, petunias, calceolarias, primulas, canterbury bells, [illegible] pinks, cosmos and columbine. [illegible] plant carnations, violets, [illegible] osa, candy-tuft, daisies, marigolds, [illegible] lardia, cineraria (for greenhouse) [illegible] opsis and phlox.

Those who live in the frost [illegible] should not transplant or sow [illegible] the tender plants at this time [illegible] for greenhouse purposes. Also [illegible] advisable for those who live in [illegible] sections to begin preparations [illegible] transplanting their garden [illegible] which are in danger of death [illegible]

When there are no [illegible] flower pots are the most [illegible] containers for house and [illegible] plants. Flower pots are [illegible] however, if there are [illegible] buckets and cans available [illegible] should be gathered [illegible] drainage. A little paint with [illegible] cans attractive at practically no [illegible] pense.

# BOYS AND GIRLS
## Their Work and Play

### HERE ARE SOME TRUE BIRD STORIES

THE contest editor has received a great many interesting stories of birds, and instructions on how to make bird houses. The following stories are only samples picked at random from the many sent by our little readers.

There is still another month in which to enter the contest, which closes the 10th of August. I am sure every boy and girl likes to write stories, especially about our interesting feathered friends, and the contest editor would like to hear from all of those who have not yet written. Remember the prize list—all in bright, new, shiny dimes:

First prize ..... $1.00
Second prize ..... .50
Third prize ..... .40

The story should not exceed 200 words. Send your letter to the Editor of ORCHARD and FARM, 1111 South Broadway, Los Angeles, Calif.

### A Bird Tragedy

AST summer a pair of mocking-birds built their nest in a honeysuckle vine and worked diligently carrying soft bits of grass until they had completed it to their entire satisfaction. They were very happy and sang from morning until night. One day things seemed quieter than usual and we found Mrs. Mockingbird had started to sit on the eggs she had laid.

Father Mockingbird was very attentive and brought her dainty bits of food to eat, and amused her by singing his gayest melodies and his tendrest lullables.

All seemed to be going well until one day we noticed that he stopped singing and darted back and forth to the nest, uttering peculiar sounds. Upon investigation we found that the other bird in some manner had caught her foot in the vines and hung suspended, and her struggles to free herself had been in vain. When finally we reached her she was dead. The day for hatching was near but the father did not know how to keep the eggs warm and the birds perished. We hope this summer Mr. Mockingbird has found a new mate and that he will never have such a tragedy again.—Esther Fonda, Inglewood, Calif.

### The Bee Martin

AST spring a pair of Bee Martins decided to build a home in our back yard and set about hunting hair, twine and string to use. One day when I came home from school I left a bunch of twine on a box while I went into the house. Imagine my surprise upon my return to discover that the Martins had taken the twine to put the finishing touches to their nest.

After the nest was completed Mrs. Martin laid two eggs and diligently sat watch over them until they hatched. When the little birds were old enough to leave the nest they would sit on the electric wires and wait for their parents to feed them. One day Mrs. Martin decided that it was time for her offspring to learn to fly, so she would get a tempting bug and perch on a limb some distance away and coax the babies to fly after her.

As they always seemed to be hungry it did not take them long to make their first attempt, and now that their school days are over they have deserted their home and I never see them any more.—Frederick Peckham, Hanford, Calif.

### A Creed

BELIEVE that the country which God made is more beautiful than the city man made; that life out of doors and in touch with the earth is the normal life of man. I believe that God is wherever I find it, but that God is in touch with nature is more inspiring than that God is with the most intricate machinery. I believe that the dignity of your work depends not on what you do, but on how you do it; that opportunity comes to a boy on the farm as often as to a boy in the city; that life is larger and freer and happier on the farm than in town; that my success depends not upon location, but upon myself—not upon my dreams, but upon what I actually do—not upon luck, but upon pluck. I believe in working when you work, and in playing when you play, and in giving and demanding a square deal in every act of life.—Edwin Osgood Grover.

### Mrs. Sparrow's Perilous Nest

ONE bright morning I was surprised to hear a bird singing quite near me and upon looking around I discovered a song sparrow building her nest on the gas meter above the back door. It was in such a perilous position that I was afraid it would fall down, so asked my father to fix her home more securely.

Father nailed some small boards which he painted the same color as the house around the nest and made a little door for Mrs. Sparrow to enter. She did not seem a bit afraid of her unusual home, as I thought she would. I nailed a cigar box under the meter and put fresh bread, cake and a dish of water into it every day. She soon learned of this "provision pantry" and when the eggs had hatched I often watched her feed the little sparrows the bread and cake I placed in the box.

After a time they became quite tame and would fly down beside me and eat the crumbs I brought them. After our return from a vacation we found Mrs. Sparrow's nest deserted and I never saw them again. I always try to take care of the birds that build nests on our farm, and by putting out crumbs and water for them they soon become quite tame.—Dorothy Sanchez, Stockton, Calif.

### The Robin

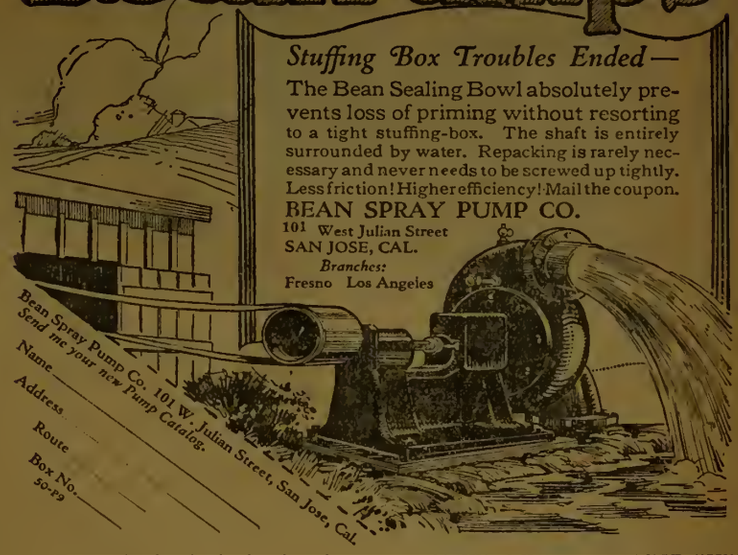
WHEN our loquats were ripe many robins built their nests in the tree. One robin built her nest so low that I could see into it while standing on the ground. The nest looked nice and soft and I think it must have been very comfortable. She made it of bits of string, straw and horsehair.

After completing her new home Mrs. Robin laid three small blue eggs flecked with brown in the nest. She certainly was faithful and hardly ever left the nest except to look for food for a few minutes. At the end of about three weeks I found three tiny, odd-looking baby birds in the nest.

The mother robin took good care of her babies and brought them plenty of food, when they would open wide their mouths, which were so big compared with their bodies. Mrs. Robin soon taught them to fly and sing and long ago they flew away to seek their own fortunes.—Ellen Fanbion, Rivera, Calif.

The moon in the sky is a custard pie,
An' the clouds is the cream pour'd o'er it,
An' all o' the glittering stars in the sky,
Is the powdered sugar for it
—James Whitcomb Riley.


Bean Pumps



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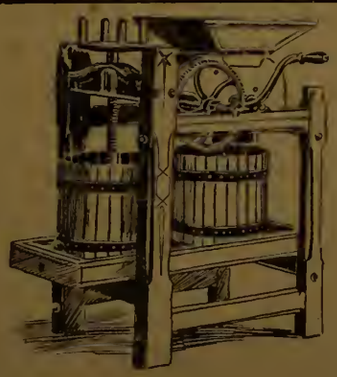

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# HELPFUL HINTS for THE HOUSEWIFE

Edited by Isabel Sinclair

The Home is the Hub of the Universe

O queenly month of indolent repose!
I drink thy breath in sips of rare perfume,
As in thy downy lap of clover bloom
I nestle like a drowsy child and doze
The lazy hours away.
—James Whitcomb Riley.

Dear Friends:—In the summer season when one can have an abundance of fresh fruit, I wonder if the housewife realizes how conspicuous a place it should occupy in the daily diet. Next in importance to the use of fresh fruit, of course, one should plan to can as much of it as possible. But while it is available make use of it fresh in every way.

Every variety contains some vital nourishing element. Apart from furnishing a valuable part of the meal, fruit stimulates jaded appetites; is refreshing, cool and easily assimilated. Grapes contain blood building constituents such as sugar, potash, salts, phosphoric acid, lime and iron.

Apples, pears, cherries and plums furnish phosphate, sugar and nitrogen, and act as gentle laxatives. Berries are good tonics, and oranges are blood makers. Melons are largely water, in combination with sugar and starch.

There are delightful ways of making fresh fruit salads. Oranges, bananas, apples and cherries tossed together with a plain French dressing and arranged on crisp lettuce leaves will tempt the most languid appetite, and at the same time make a very nourishing combination. Another refreshing salad, made of shredded lettuce and finely diced apples, marinated with either a French dressing or light mayonaise and placed on a lettuce leaf, not only is healthful, but also may take the place of many heat-producing and heavier foods.

By all means give the children plenty of fresh, ripe fruit, but the wise mother will not allow them to eat oranges, berries or acid fruits when milk forms a part of the menu.

Fruit has ceased to be a luxury, and it is a wise and excellent investment especially here in California, where quality excels.

Sincerely,

Isabel Sinclair

## Home Made Gas Mantle

MAKE a strong solution with epsom salts and distilled water. Make up bandage gauze into mantle forms, wire and dip into solution a number of times until they are stiff with salt, drying each time after dipping. When dry for the last time, hold in a flame. The cloth will burn away, leaving the skeleton of magnesium.—L. Fiburg, Oakland, Cal. H.)

## Nut Bread

TO make a delicious nut bread use 2½ cups flour, 3 heaping teaspoonsful baking powder, ¾ cup chopped nuts, ½ cup sugar and 1 teaspoonful salt. Mix all dry ingredients together, then add one egg well beaten in one cup of milk. Bake in a moderate oven for an hour.

## New Chocolate Icing

TO ½ cupful confectioner's sugar add 6 tablespoonsful of cocoa, 3 drops olive oil, pinch of salt and ¼ teaspoonful vanilla. Add sufficient boiling water to make a thick, smooth paste and spread on cake.

WHEN the walls of a room papered with a felt or oatmeal paper become soiled, they can be freshened easily by applying a coat of tinting mixture in a harmonizing shade.—W. L. Smith, Santa Maria, Cal. (H)

## Appetizing Custards and Whips

### Eggs Form the Basis of Many Nutritious and Easily Digested Desserts.

IN summer, when eggs are plentiful and cheap, the thrifty housekeeper will find many ways in which to utilize them in the menu. When eggs are used it is not necessary to have as rich or heavy foods for the rest of the meal.

The following recipes are a fitting climax to any meal and are high in food value as well. Try them for tasty summer desserts:

#### SOFT CUSTARD

1 cup milk
¼ teaspoon vanilla
1 egg
2 tablespoons sugar
⅛ teaspoon salt

Heat the milk in a double boiler. Mix the eggs in a bowl with the sugar and salt. Add hot milk slowly, stirring, and return mixture to the double boiler. Cook until custard will coat a silver spoon. Strain and serve. If the custard curdles, set the pan in cold water and beat until smooth.

#### STEAMED OR BAKED CUSTARD

1 pint milk
2 eggs
¼ cup sugar
⅛ teaspoon nutmeg or cinnamon
⅛ teaspoon salt

Mix eggs as for soft custard. Strain into custard cups and steam over hot water, which is boiling gently, until firm. To bake, strain the custard into cups and place in a pan of warm water. Bake in a moderate oven until the custard is firm. To test a steamed or baked custard, slip a knife blade to the bottom of the cup in the center of the custard and draw out without turning. If the knife is not coated the custard has cooked enough. Grate the nutmeg over the surface and cool before serving.

#### FLOATING ISLAND

1 quart milk
¼ teaspoon salt
½ cup sugar
5 eggs (yolks)
¼ teaspoon vanila

Prepare as a soft custard. The whites should be beaten light and 2 tablespoons powdered sugar added for the meringue. When the custard is cool it may be poured into sauce dishes and the meringue dropped in large spoonfuls into it.

#### CUSTARD PUDDING.

½ cup pearl tapioca or rice
2 eggs (yolks)
½ teaspoon vanilla
½ cup sugar
2 cups milk
2 eggs (whites)
⅛ teaspoon salt

Soak the tapioca in enough cold water to cover it until it absorbs the water. Add the milk and cook in a double boiler until the tapioca is soft and transparent. Combine the yolks of eggs with sugar and salt and add to the mixture. Cook until it thickens. Add stiffly beaten whites and flavoring, and when cold serve. Rice must be cooked in boiling water until soft.

## Electricity and a Sewing Machine

EVERY stitch in a garment is a pleasure when one has an electric power machine the speed of which may be regulated by the pressure of the foot. Such a machine really does exquisitely fine sewing.

After once using a power machine, every woman who possibly can do so, disposes of her old foot-power type. A number of the motor machines may conveniently be carried about. If one desires, the "portable" may be taken out on the veranda or to any cool spot, and attached to the electric light socket. Then the task of sewing becomes a task no longer. When not in use, the machine may be placed in its small case and stowed away.

One particular manufacturer has eliminated the bobbin. Many tent-making concerns as well as athletic underwear manufacturers, when strong, elastic sewing is necessary, employ these machines because of resulting tight, durable stitching. The bobbinless machine, also regulates its own tension, and will sew canvas or chiffon without adjustment.

There are many useful attachments, including those for hemstitching, picoting and embroidering. And what charming dresses the home dressmaker can have, at such a big saving that an extra hat or some much-needed accessory can be purchased with the difference.

There is a big saving, too, in making the children's school clothes, beside the pleasure of planning them. And in making children's clothes again arises the necessity of having good stout seams that will not rip. In the case of the bobbinless machine even cutting through the stitch at any point will not cause the thread to ravel or pull out. However, it can be unlocked and the thread quickly removed if desired—a distinct advantage in altering garments, especially where there are growing children in the family. After the stitch is unlocked, it may be relocked instantly.

It really costs very little to run one of these machines—perhaps a quarter of a cent an hour.

## How to Shine Stove

WE are all proud of a brightly shining stove. To put the stove in this condition, start your cleaning work with a smile and use plenty of "elbow grease." Mix any kind of stove blacking with equal parts of wood alcohol and turpentine.

Use a woolen rag and dip it into the mixture, giving an even rubbing all over the stove from the top pipe to the four iron feet; also blacken the water pipes, as you will find this improves appearances. When dry, brush the stove everywhere, and as a finishing touch give a light rubbing with a pad made of velvet pieces.—Mrs. M. Merkel.

## Scissors in the Kitchen

A PAIR of medium-sized scissors hanging in a convenient place in the kitchen are a valuable help. Following are some of the purposes for which they will be found useful:

For cutting cold meat into cubes.

For cutting celery or green peppers into small pieces for pickles or salads.

For shredding cabbage or lettuce.

For cutting up raisins or dates.

For cutting out the center membrane of a grapefruit in preparing it for the table.

For cutting out the woody core and eyes of fresh pincapple.

For trimming the rinds from breakfast bacon.

After the scissors are used each time they should be carefully washed and dried.

## Darning Suggestions

MUCH time can be saved when darning by placing the goods in an embroidery hoop and darning with the sewing machine. Remove the presser foot, change to the short stitch and lower the lever which regulates the presser foot bar. Move the goods back and forth and crossways and with a little practice, very neat darning can be accomplished.—Mrs. E. L. Geer, Paso Robles, Calif. H.)

## Little Helps

Small kitchens are best. Utilize every inch of space.

If hot grease drops on the floor, put cold water on it and thus keep it from penetrating the wood.

A high stool in the kitchen costs little and the time is past when it is considered lazy to sit while you work.

To add an extra gloss to window glass and mirrors after washing them rub a little thin cold starch over the surface, let dry and then polish with soft cloth.

To preserve the color of a print dress, wash in warm soapsuds to which has been added a tablespoon each of powdered borax and common salt. Do this also in the warm rinsing water. Wring tightly and roll in a clean towel until dry enough to iron

Cracks in floors may be permanently filled by thoroughly soaking newspapers in paste made of a half pound of flour, three quarts of water, half pound of alum, mixed and boiled. The mixture should be about as thick as putty, and may be forced into the crevice with a knife.

Velvets may be freshened by steaming from the wrong side. Draw the velvet through steam from a teakettle, care being taken that no water spots it. Another way is to place several thicknesses of damp cloth over a hot iron and pass the back of the velvet quickly over the cloth. Velvet so creased that it cannot be freshened by steaming may be "pressed" after steaming and then ironing on right side in one direction.

When thin dresses need freshening put a tablespoon of borax powder in a bowl of water and dampen the entire dress, then press on the wrong side with a hot iron. To give fine white waists and all sheer materials just the right degree of stiffness wash and dry without starching. Put a tablespoon each of starch and borax into a gallon of water. When dry dip starch garments in this and roll them until ready to iron.

# PRETTY COSTUMES

## Selected by Isabel Sinclair

*These costumes are simple and can be made readily by the home dressmaker from the instructions provided. Send 15 cents in silver or stamps for each pattern desired. Address Pattern Department, Orchard and Farm, 1111 South Broadway, Los Angeles. Give full name and address.*

**3655—Lady's Dress**

Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. A 38-inch size will require 5⅝ yards of 40-inch material. The width of the skirt at the foot is about 2⅛ yards. Price 15 cents.

**3675—Child's Play Suit**

Cut in 4 sizes: 2, 3, 4 and 5 years. A 4-year size will require 1⅞ yards for the rompers, and 1¼ yards for the waist, 36-inch material. Price 15 cents.

**3661—Girl's Dress**

Cut in 4 sizes 6, 8, 10 and 12 years. A 10-year size requires 2¾ yards of 36-inch material. Price 15 cents.

**3657—Misses' Dress**

Cut in 3 sizes. 16, 18 and 20 years. An 18-year size will require 4⅝ yards of 38-inch material. The width of the skirt at the foot is 2 yards. Price 15 cents.

**3410—Juniors Dress**

Cut in 3 sizes 12, 14 and 16 years. A 14-year size will require 4 yards of 44-inch material. Price 15 cents.

**3277—A Popular House Dress**

Cut in 7 sizes 36 38, 40, 42, 44, 46 and 48 inches bust measure. A 38-inch size requires 5¼ yards of 36-inch material. Price 15 cents.

**3681—Under Garment**

Cut in 4 sizes 10 12 and 14 years. A 12-year size requires 2¼ yards of 36-inch material. Price 15 cents.

**3653—Child's Dress**

Cut in 4 sizes: 2, 4, 6 and 8 years. A 4-year size requires 2¾ yards of 27-inch material. Price 15 cents.

**3658—A Practical Seamless Apron**

Cut in 4 sizes: Small, 34-36; medium, 38-40; large, 42-44; extra large, 46-48 inches bust measure. A medium size will require 2⅝ yards of 36-inch material. Price 15 cents.

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Cover one half package of Sun-Maid Raisins with cold water and soak over night. In the morning add a slice of lemon or orange. Place on the fire in the same water in which they have been soaked and allow to cook slowly for thirty minutes. Sugar may be added, but it is not necessary, as Sun-Maid Raisins contain natural fruit-sugar. Serve with or without cream.

This is what thousands do at the direction of experts to win back the healthful rose tint to pale cheeks.

They take regular exercise, sleep regular hours, and then start breakfast with stewed raisins. The raisins are plump, delicious fruit-meats stewed so the juice forms a luscious sauce. Note recipe printed at left. A more alluring fruit dish never has been served in any home—nor any other food that's more effective in this way.

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*Luscious nuggets of food-iron*

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WANTED—TO PURCHASE FOR IMPROVEMENT, 1,000 OR MORE ACRES, ANTELOPE VALLEY, SACRAMENTO OR SAN JOAQUIN VALLEY. R. E. MUNCY, 502 STORY BLDG., LOS ANGELES.

WANT to hear from party having farm for sale. Give particulars and lowest price. JOHN J. BLACK, 11th street, Chippewa Falls, Wisconsin.

FARM WANTED—Wanted, to hear from owner of a farm or good land for sale for fall delivery. L. Jones, Box 91, Olney, Ill.

WANTED—To hear from owner of good ranch for sale. State cash price. Full particulars. D. F. Bush, Minneapolis, Minn.

WANTED—To hear from owner of land for sale. O. K. Hawley, Baldwin, Wisconsin.

## ARIZONA LAND

$[illegible] PER ACRE—FIVE and ten acre tracts, only 4 miles by boulevard from postoffice, in Tucson, a city with a population of over 23,000. Three transcontinental railroads, finest climate for health-seekers in the country, elevation 2,400 feet. Fine level land, no alkali; best of soil and water conditions. Highest market for truck gardening, fruit and dairying. Remember this is the gateway to Mexico. STODDARD, 801 Hibernian Bldg., Los Angeles, [illegible]

## REAL ESTATE—Sale or Exchange

FOR RENT, sale or trade for Beach property, 400-acre ranch at San Jacinto; plenty water, 100 acres under cultivation, balance in pasture; will keep 70 to 100 head of stock. Timber and running water in pasture. $10,000 or $12,000 improvements. $1500 cash rent. $60,000 for sale or trade. D. Schroeder, 439 Lincoln Ave., Pasadena, Cal.

FOR SALE OR TRADE—600 acres good level unimproved land in Klamath Co., Oregon. Wanted in trade place suitable for bees, ducks or chickens. Price $10 per acre. W. H. Johnson, 22 Maple Ave., Watsonville, Calif.

## COUNTRY PROPERTY FOR SALE

CARLSBAD-BY-THE-SEA—Our ranchers will begin planting their winter crop of Green Peas very shortly. This crop equals oranges for heavy returns. $500 an acre and over has been made in five months from planting. As quick as oil and more safe.

LAND with water on easy terms.

For prices, maps, etc., call on or write SOUTH COAST LAND COMPANY, Broadway 6395. 14545. By F. M. CLAUSSEN, SALES MANAGER, 712 GARLAND BLDG., 740 BROADWAY, LOS ANGELES, CALIFORNIA.

## ANTELOPE VALLEY

THE Great Antelope Valley Alfalfa producing district now has a fine paved road direct to Los Angeles. Hundreds of Big truck loads of alfalfa hay go direct from the producer to the dairyman; good raw land in the easy lift water belt; $60 an acre, one fifth cash. Write us. The R. & L. Ranch, 611 Fay Bldg., Los Angeles.

## PLANTS AND BULBS

$1400 PER ACRE FROM RHUBARB first season after planting received last season by Glendale grower through Rhubarb Association. Plant this money maker this spring. Best intercrop for young orchard. Write at once for circular giving full information and price list of plants. W. A. Lee, Rt. 1, Covina, Calif.

CELERY, Pepper plants, $4 per 1000. R. Crah, National City, Cal.

## NURSERY AND GARDEN STOCK

PLANT A PRUNE ORCHARD—Take advantage of our low prices. We can furnish the trees and guarantee satisfaction. Send your address for prices and special terms. HOOKER OAK NURSERY, Chico, Calif., Box 919.

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HAVE YOU GOPHERED ORANGE TREES? You can save them by inarching. We have the orange seedlings for this purpose. Also 100,000 orange seed bed trees, both sweet and sour stock. Valencia, Navel and Eureka Lemon budded trees. SOUTHLAND NURSERIES, 1941 E. Colorado St., Pasadena. Phone Colorado 6362.

HIGH GERMINATION ALFALFA, $7 bushel; Red Clover, $8; Sweet Clover, $6; Kanred Wheat, $2.25; Kansas Turkey, $1.75. Satisfaction guaranteed. Reliable Seed, Salina, Kansas.

OUR Introduction—Wonderful New Hybrid Alfalfa. Write J. L. Lawson, Reliable Tree and Seedman, San Jose.

## AUTO TRAILERS

$600 $35 to

2 and 4 Wheeled Auto Trailer Co.

2 and 4 Wheeled 1322 Central Ave. Los Angeles.

ADDRESS DEPT. A.

## ROOFING MATERIAL

ROOFING PAPER, Firsts. Complete 1-ply, $1.[illegible] 2-ply, $1.60; 3-ply, $2.20. Best bungalow paint ........ $2.25 a gal. Roof paint, special ........ 40c a gal. Prompt deliveries on mail orders. ANGELUS ROOFING & PAPER CO., 761-765 South San Pedro Street. Ph. Bdwy. 7481. Los Angeles, Cal.

## LIVESTOCK—Sheep, Mich Goats

FOR SALE—Registered grade Toggenburg and Saanen milk goats and kids. Fine stock for starting a herd. For service, El Rey de la Estrella, No. 7466, pure bred naturally hornless Toggenburg buck. Service fee $[illegible] Ed. Thomas, Rodeo, Cal.

## LIVESTOCK—Guernseys

SYCAMORE RANCH GUERNSEYS. Reliance of Edgemoore, whose 2 nearest dams averaged 844 lbs. B. F. at head of herd. Some good ones for sale, both male and female. Russell S. Cox, San Marcos, San Diego Co., Calif.

## LIVESTOCK—Hogs

SPECIAL—Wennings sired by a son of King Orion Jr., who was second prize winner at the National Swine Show, 1919, and grant champion, San Francisco Land Show, 1919. H. F. Boulter, Napa.

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GET maximum income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, Cal.

## PATENT ATTORNEYS

WEBSTER, WEBSTER & BLEWETT, Savings and Loan Bldg., Stockton, Calif. Established 50 years. Send for free book on patents.

## PAINTS AND VARNISHES

PAINTS—WALL PAPER FACTORY TO YOU—ONE PROFIT

WHY PAY MORE?

Flat white, $2.25 a gallon. Weatherproof roof coating, 65c gallon. Best house paint, $[illegible] gallon. Outside white, $3 gallon. Linseed oil, white lead at wholesale. Our products are the best. Our prices are the lowest. SEE US FIRST. WE SHIP EVERYWHERE. UNITED WHOLESALE PAINT CO., 630 South Main St., Los Angeles, Cal. 66070.

**Save 50% on Your Paints**

We ship anywhere—orders filled promptly.

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| Flat white or Ivory | $1.75 |
| Ivory or white enamel | $[illegible] |
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PACIFIC PAINT & SUPPLY CO., 603 East 7th St., Los Angeles, Cal.

PAINTS, WALL BOARD, ROOFING

Wall board, odd lengths, $20, 2nds, $35, 1sts. Grade plain or plaster board, $10. Best roof paint, 40c; bungalow paints, all colors, $2.25; standard flat white, $1.90. Full line paints, etc. Roofing as low as $1.00 per roll.

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FOR SALE—Save your roof for 1[illegible] a gallon with asphaltoid. Our rich natural asphaltized roofing paint, the best roofing and preservative paint under sun. Why pay more for acid-treated asphalt that eats your roof? Mail orders, barrel lots, promptly shipped. WOOLNER OIL CO., 4th and Commonwealth, Los Angeles.

## KODAKS, CAMERAS, SUPPLIES

"We Pay the Postage"

Don't Take Chances.

Have your Kodak finishing done by experts. Mail your negatives to

Winstead Photo Finishing Co., Box 116, Los Angeles

"We put the snap in snapshots"

Let us enlarge your favorite negative.

## MEDICAL

DISEASED GROWTHS

TUMORS, WENS, BREAST LUMPS treated. MILD PLASTER METHOD, no knife, no blood and little or no pain; our guarantee is "pay when well." Beware of a sore or sore that will not heal. Send for free book Examination free. SHIRLEY TREATMENT INST., 253 12th St. Oakland, Cal.

## PERSONAL

GRASP your opportunities. Your lucky days and other beneficial information as forecast from the stars. Send twenty five cents with hour, date and place of birth for trial reading. Satisfaction guaranteed. LEONIDAS, 1910 Main Street, San Diego, Cal.

MARRY for prosperity, happiness. Hundreds wealthy. Best most successful. Write the "Convenient Confidential," descriptions FREE. Mrs. Budd, Box 753, San Francisco, Calif.

YOUR FUTURE FORETOLD—Send dime, birth date for truthful, reliable, convincing trial reading. Hazel Hause, Box 215, Los Angeles, Cal.

## BOOKS BOUGHT AND SOLD

BOOKS BOUGHT—Collie and rare books a specialty. Dawson's Book Shop, 518 S. Hill st., Los Angeles. Phone 6[illegible]0.

## AGENTS WANTED

WANTED—SALESMEN WHO CAN SELL high grade, dependable nursery stock; exclusive territory, outfit furnished and cash advanced weekly; commission basis. Address Albany Nurseries, Inc., Albany, Ore.

## ASSAYERS AND GOLD BUYERS

GOLD, [illegible] bought, cash assays, etc. Pioneer Assaying Company, 6[illegible] Market street, opposite Palace Hotel, San Francisco.

## BIRDS, DOGS, PETS

ENGLISH Bull Terrier pups from Champion Flossy Snow and [illegible] Taffy. Male pups. [illegible] litter. A. F. [illegible], 508 [illegible] ave., Oakland, Cal.

WANTED to buy—Canaries, parrots, doves, ducks, cats, guinea pigs, animals all kinds. Buker's Bird Store, 1176 Market St., San Francisco.

## CHIROPRACTIC COLLEGES

FREE Chiropractic Treatments. 931 S. Hill St., Los Angeles. Dr. Cale, President.

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FOR SALE—ENGINE PUMPING [illegible] Read the list below. Hundreds [illegible] these plants by electricity [illegible] you nearly any make or kind [illegible] a remarkably low figure. [illegible] us. We will guarantee to save you [illegible] Telephone at our expense.

One 15 H. P. N Type Fairbanks
One 18 H. P. W[illegible]
Two [illegible] H. P. Western
One 10 H. P. N Type Fairbanks
One 1 H. P. Foos
One 8 H. P. Simplicity
One 15 H. P. Stover
One 8 H. P. International
Two 12 H. P. Samsons
One [illegible] H. P. NB Type Fairbanks
One [illegible] H. P. Commercial
One Continental Engine and [illegible] Pump
One 1½ H. P. International
Two 1½ H. P. Commercials
One 1½ H. P. Simplicity
One 3 H. P. Simplicity
One 1½ H. P. N Type Fairbanks
One 15 H. P. N Type Mounted Fairbanks
One 16 H. P. Western
One 18 H. P. Western
One 10 H. P. R & V
One 20 H. P. Samson
One 12 H. P. R & V
One 4 H. P. Samson
One 3 H. P. Samson
One 10-18 Case Tractor
One [illegible] H. P. Fairbanks
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CROWE HDWARE & ELECTRIC [illegible] Tulare, Calif.

TRACTORS at half price. [illegible] bank [illegible] or wire F. M. Grit[illegible], 17 South A[illegible] Stockton, Cal.

## TURKEYS AND GEESE

TURKEYS—[illegible] bronze [illegible] "Goldbank [illegible]" and "[illegible]" [illegible] Irene [illegible] King Mountain [illegible]

## DUCKS

CALDWELL'S White Muscovy [illegible] Ducks. Wm. Welsh, [illegible] Caldwell Duck Ranch, Box 274, L[illegible]

## RABBITS AND PIGEONS

OSBOR HAVANAS. The [illegible] 1919 for delivery [illegible] 720 Kingsley Dr. Los Angeles.

PEDIGREED FLEMISH GIANTS [illegible] prices. Mrs. T. Beeching, 1578 W. [illegible] St., Los Angeles, Cal.

AMERICAN [illegible] per trio [illegible] net St. Los Angeles.

NEW ZEALAND [illegible] breeders $[illegible] a pair $6.50 for a [illegible] string's Rabbit Farm, Petaluma, Cal.

## GUINEA PIGS, MICE, RATS, ETC.

GUINEA PIGS [illegible] 1014 Brooklyn Ave. Pas[illegible]

## TAXIDERMY, FUR DRESSING

FURS tanned, [illegible] Fair Ave. Santa [illegible]

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BARRED PLYMOUTH ROCK [illegible]

BABY CHICKS [illegible]

WHITE Leghorn [illegible]

CHICKS EVERY WEEK [illegible]

WANTED POULTRY [illegible]

BEGINNING [illegible]

WHITE LEGHORN [illegible] PIONEER [illegible] 418 Sixth Street [illegible]

GREAT MID-S[illegible] [illegible] Parlier, Calif.

## FARMERS' CLASSIFIED MARKET PLACE

### POULTRY

CAPACITY 170,000 EGGS
30,000 CHICKS EVERY WEEK

WE will hatch every week during the summer and we will be in a position to supply all this chicks and turkeys our customers need. Entirely an electric hatchery, insuring you the best chicks from the best eggs; properly handled, honestly handled (two extra chicks to ths hundred); promptly delivered by parcel post or express anywhers within 72 hours run from Los Angeles. Ws surely havs your favorite breed in ths following kinds: Rhods Island Reds, White Rocks, Blue Andalusians, Barred Rocks, Anconas, Black and White Minorcas, White or Silverlaced Wyandottes, Brown Leghorns, Buff Leghorns; also our dependable Oregon McFarland Whits Leghorns. Pekin ducklings and baby turkeys. Why not send for price list and place your order for early delivery.

REDWING HATCHERY,
2030 E. Florencs Ave., Los Angeles, Cal.
Phone: South 6038W.

### BABY CHICKS

"Pionser"

All the Popular Breeds
EVERY WEEK
Baby Ducks
Baby Turkeys

Write for Price List
Also agents for Pioneer Incubators and Brooders.

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PIONEER HATCHERY
320 S. Spring St. Los Angeles, Cal.
"WORLD'S LARGEST CHICK DEALERS"

S. C. Whits Leghorn baby chicks from the Heavisst laying (hoganized) stock. Safe delivery, live, vigorous chicks guaranteed. No money in advance: pay on delivery. Price from July 15 to August 31, $4.00 per 25, $8.00 per 50, $15.00 per 100. Special prices 500 and 1000 lots. Largest electric hatchery in the world. Established 1898.
MUST HATCH INCUBATOR CO.,
432 Seventh Street. Petaluma, Calif.

ATASCADERO Poultry Farms, owned by Lewis Foundation Corp. S. C. White Leghorns, Rhode Island Reds, baby chicks. Henry Miller, Supt., Atascadero, Cal.

### POULTRY

### DAY-OLD PULLETS

Here is your chance to get day-old White Leghorn and Ancona chicks guaranteed at least 90 per cent pullets. We are taking orders fast for August and September delivery. We also havs R. I. Red and Barred Rock chicks, but do not separate the sexes. All chicks are from strictly thoroughbred, laying stock and are hatched right and shipped by special delivery parcel post. Send for prices and get your orders in at once. Ws also have a limited number of pullets from two to four months old and yearling hens.

Orange County Hatchery
Santa Ana, Calif.

### PULLETS

All kinds of pullets. Write for prices. Baby chicks, turkeys, ducklings, every day. Complete line of supplies. EVERYTHING IN HAIR, FUR AND FEATHERS.

FANCIERS' EXCHANGE
640 S. Main St. Los Angeles, Cal.

### POULTRY SUPPLIES

of every description. Incubators, brooders, brooder stovcs, feeders, founts, sprayers, feed cutters, feed and bone mills, egg scales, Hills kill-mite, sheep dip, louse powders, Carbola, moulting feeds, tonics, remedies. Best poultry house. Paints least money. RAX, death to rats. Two months old pullets. C. E. Hill Co., 418 11th st., Oakland, Cal.

BABY CHICKS—Barred Rocks, R. I. Reds from proven layers. Letters from last fall customers report pullets laying at 4½ months old. Thousands of chicks already booked. 25 chicks, $5; 50, $9.50; 100, $18. Chicks sent parcel post. Special delivery. We pay all chargcs and guarantes 97 per cent live chicks on arrival. Established 1915. Hargett & Sons, Rt. 2, Box A, Compton, Cal.

HEN COMFORT—This is what you have been waiting for. Comfort your laying hens by using Sanitary Nest Eggs. Kills all parasites on the hen and in the nest. Once a user of the most practical nest eggs—always. Send 10c for sample, or better, send 50c and receive one dozen and join our service system. Sanitary Service Co., So. Berkeley, California, Box 94.

## Well Bred Is Half Sold—A Lesson in Pictures

STRIKING evidence of the value of pure breds! The upper photograph, taken on the ranch of the Tehachepi Cattle Co., near Bakersfield, shows in

the background a lot of nondescript range cows. The choice white face heifers in the foreground produced by these "s rub" cows, bear the unmistakable stamp of the registered Hereford sire. They were sold at 22 months, averaging about 1400 pounds, and brought a premium on the Kansas City market.

These illustrations are published by courtesy of Clifford B. Harris, of Los Angeles who during the past five years have brought more than 2,000 head of pure bred Hereford cattle from the East to California and the Hawaiian Islands. Many of these animals have come from the great Hereford breeding establishment of O. Harris and Sons, in Missouri, where the famous "Repeater" line originated.

The 2 year-old bull shown in the inset is a recent acquisition recently purchased by the Hearst Ranch San Simeon, from Mr. Harris, it is said to be the best bull in revolving,

It is understood that a number of owners of great Pacific Coast estates are active this season in taking advantage of a "buyers' market", with the result that many famous individuals will be brought here to augment the increasing value of California pure bred cattle.—Albert J. Mason.

## How I Beat the Game at 60

(Continued from Page 23)

there has not been a square foot not in use.

I had much to learn; some varieties were not a complete success, but they gradually were replaced with those that throve.

And there was much to learn about care and marketing, too. I knew absolutely nothing of berry culture; I don't know much now, but should anyone ask me I would say that a careful selection of varieties, suitable locally to soil and climate as well as market demands, counts much towards final success. Of course, it goes without saying that eternal vigilance in care and cultivation is necessary.

I have had three full crops now from my little two-acre berry farm. I no longer look upon myself as a down-and-outer. If anyone else does, that is his privilege, but my bank account would prove the laugh to be on the other fellow.

Upon one little spot of rocky hillside stands my bungalow home, with its large, cheerful living room and the open stone fire-place before which I can sit during the long winter evenings and smoke my pipe in cheerful content.

I meditate much upon the fact that the younger generation is rushing city-ward with the cry upon their lips that there's no chance for them in the country. At the same time, the cities are filled with and getting more full of men of middle age and past, crowded to the wall by the strenuous conditions of the day. Many families barely live to day and know not what the morrow may bring forth.

For these there seem opportunities in country neighborhoods and settlements, depopulated by the steady emigration city-ward. Berries? Why, no, not necessarily; there are numberless products of the soil—little enterprises that can be handled on a small acreage.

And whether one lives East or West, North or South, a careful study of conditions right at home and a firm determination to get a new foothold—surely will carry one up out of the depths and into a condition of comparative prosperity. I know.

## Our Mistake

ATTENTION of subscribers is called to an error in an advertisement published on page 24 of our July issue. In the announcement of Hanson's Poultry Farm, Corvallis, Ore., appeared the phrase, "First pen Western Washington Egg Laying Contest." This should have read, "First hen Western Washington Egg Laying Contest."

**Among the Best**—"I consider ORCHARD and FARM one of the best of the agricultural periodicals."—W. A. Dyer, Orange, Calif.

**Finest Paper Published**—"I have been a subscriber to ORCHARD and FARM for some time and think it the finest farm paper published."—A Subscriber.


## AGENTS WANTED

We have a number of agents who are making from $50 to $100 per week. If you have some spare time you had better get in touch with our agency department.

Right now we need more men and women on our subscription staff. Orchard and Farm is the most popular agricultural journal in California and it requires a large field force to care for the demand for new and renewal subscriptions.

We are offering agents liberal commissions. You don't need experience. We furnish free your complete equipment. An inquiry involves no obligation.

ADDRESS
ORCHARD and FARM - - - Los Angeles, Cal.

# One More Chance

**to share in the distribution of nearly**

# $150 in Cash Prizes

The Helpful Suggestions Contest has been continued until September. In addition to the scores of suggestions already received from subscribers, we want more money and labor-saving ideas.

## WRITE THE EDITOR TODAY

Describe your scheme for lightening the work or increasing the profits. Sketches or photographs desired but not required. Simply tell in your own way how you have put into practice some plan that would help other subscribers. The judges will select the winners, to be announced in the succeeding issue, and checks will be mailed to the fortunate ones as follows:

| | |
|---|---|
| First prize | $30.00 |
| Second prize | 20.00 |
| Third prize | 15.00 |
| Fourth prize | 10.00 |
| *In Addition There Will Be* | |
| Five prizes of $5 each | $25.00 |
| Seven prizes of $3 each | 21.00 |
| Ten prizes of $2 each | 20.00 |

You must be a paid subscriber in order to take part. No limit to the number of entries from one subscriber. Write on any subject connected with agriculture or the farm home.

**Address: Editor,**

# ORCHARD and FARM

**1111 South Broadway, Los Angeles.**

**(Mark your communication "For Helpful Suggestions Contest")**

# The Magic Formula

(Continued From Page 9)

you come in tomorrow instead?" The girl busied herself with some papers.

He suppressed the irritable reply that sprang to his lips, turned as if to go, hesitated—noticed a stamped letter upon the desk-top.

"Shall I mail this for you?" he asked.

"Oh, thanks", she replied, glancing up quickly. "That's very kind of you."

He picked up the envelope, noticed the address, and smiled. "Shelbyville, Wyoming! Why, I was there last summer. It's a dandy town."

The young woman's face brightened. "Do you really think so? I was born and raised in Shelbyville. To some people it would seem a little, out-of-the-way place, but I'm very proud of it. Some day it's going to be a big city. My folks all live there."

"It's a beautiful spot, all right," agreed Robert, reminiscently. "Big trees, mountains beyond. I'd surely like to spend a summer there. I'll bet there's wonderful hunting in those hills."

"Yes, the boys have deer hunting and trout fishing every year. Sometimes I can hardly wait to go home. Oh, just a minute! That man has left the private office. I'll see if Mr. Langly won't ask you in."

She pressed a switch and spoke in a low tone into the transmitter that hung before her. After a moment she turned and smiled brightly.

"Mr. Langly will see you now," she said.

Robert pushed open the door marked "Private" and stood for a moment gazing at the bulging back of the senior partner.

Presently the latter swung about in his chair and examined the caller impatiently over his glasses. "Well, what is it?" he asked in a gruff voice.

"Mr. Langly, I've changed my mind. I've decided to take that time-keeping job if it's still open, sir."

"Well, I'm glad you've come to your senses. When I was a young fellow, I didn't have the nerve to expect to step into an executive position without any experience. Why, back in the little Pennsylvania town where I was raised, a boy thought he was lucky if he could start out at $5 a week."

"But I'm no boy, you know. I've knocked around considerably. I've drawn more money than this time-keeping job will pay, too, but that doesn't cut any figure. I'm willing to start that way if there's a chance to get ahead."

"Yes, yes, I know, and I'm glad you're on the right track at last. Your father never had any such ideas as you were parading here the other day. Why, when he and I started out, we both went to work in a glass factory at 7 cents a day. Put in long hours, too. I remember we took all kinds of things from the foreman, just to hold our job. We had some tough going, I'll tell you."

"But I'll bet you have a soft spot in your heart for the old town, at that, Mr. Langly," ventured Robert.

The busy official, his littered desk for a moment forgotten, chuckled. From the stack of papers at his elbow he extracted a letter, to which a check was pinned.

"Well, there you are," he said, holding it out. "I always fall for that stuff," he added, chuckling again.

"Five hundred dollars!" Robert ejaculated, glancing at the check.

"Yes, for the library, you see," explained Mr. Langly, pointing to the letter. "I couldn't resist the appeal. I've sent a lot of money back to the old town. Why, I can close my eyes now and see Miss Spinks, the librarian, with her hair combed straight back and those big shell-rimmed spectacles, tapping her pencil and saying, 'Next,' just like a barber." The old gentleman shook with suppressed laughter.

"Well, enough of that!" he exclaimed suddenly. "Let's see, you were—oh, yes, the time-keeping job." He frowned, protruded his lower lip and glanced keenly at the clean-cut face of the young man.

"Tell you what I'll do, Robert. If you have any of the stuff in you your father had, you ought to be able to tackle something a little better than that. I have a notion to try you out—Miss Jones, your notebook, please.

"Dear Mr. Fredericks. This will introduce Mr. Robert Harper, whom you will place in charge of the stock room tomorrow morning, relieving Sanderson. Harper will receive the same salary. Send Sanderson to me, please. Yours very truly,——"

He turned to his desk until the stenographer brought the letter to him. Then, to the surprise of the new employe, he held out his hand and grasped that of the young man in a quick, powerful clasp.

"All right, my boy. Now it's up to you. Give this to the superintendent in the morning. Good day."

*"All right, my boy. Now it's up to you."*

"MY GRACIOUS, how you do talk!" remarked the motherly Mrs. Benson that evening, as Robert finished

pushed back his chair. "That's more like it."

"Just a coming appetite, old dear," she replied, pinching her cheek playfully. Then he took the stairs, three at a time, to his room.

The waste-basket beside his desk overflowed with minutely-torn bits of white paper before he completed a certain letter. In fact, it was very late, when at length, he slipped out and dropped it into the mail box on the corner. Pausing on the steps, he took a long, deep breath of the cool night air and stretched his arms. And for once when he entered the house again, the blue-glass door-panel failed to irritate him.

IT WAS six weeks later when the buzzer at the stock room desk sounded imperiously. A few words at the inter-office telephone brought the new employe once more into the president's private office.

"Well, Robert, I've decided to send you on a little mission for the firm. Sanderson can look after the stock room again during your absence. Have a cigar?

"You will get a reservation at once on the night train for Deerfield, Texas —why, what's the matter?"

Robert had half risen from his chair. "Nothing, sir," he answered confusedly. "I—I once had a friend there, and I just happened to think——"

"All right. Now here's the situation. Last year we took the contract to install the new pumping plant for the town. I sent one of our best men down there and he put through the job in good shape. In fact, the whole thing was O. K.'d by the city engineer. But now there seems to be some serious trouble and some of the officials are trying to come back at us—have threatened us with a lawsuit, in fact.

"I am positive they have no grounds for action, but we must have some first-hand knowledge of what is going on. There's a nigger in the woodpile, somewhere! It will be a long time before this firm gets tangled up in politics again, but now we're into this, we must see it through and protect our good name."

Robert was listening intently. He merely nodded.

"You're not to advertise your connection with this firm. Just circulate around and see what you can find out. Stay as long as necessary, but report back to me in person just as soon as you have any definite information. Think you can do a little detective work?" he added, smiling.

"I'll do my best, Mr. Langley," was the simple reply.

"All right, my boy. Now, here are copies of all the correspondence. Don't let these papers out of your possession. The cashier will advance you money for expenses and you can draw on us if you need more. Talk to Johnson before you leave. He's the man who did the work and he will tell you the history of the thing, and give you a line on what's what and who's who. Better get your ticket first. Good-bye and good luck!"

"WHEW! Things are happening fast," murmured Robert when a few hours later, he rushed into the hallway at the rooming house.

"Mrs. Benson," he called. "Hello, where are you? I say, I'm leaving town on a little business trip to Texas. Don't know just how long I'll be gone. Here's my forwarding address. Keep it to yourself, won't you, old dear."

"Why, here's a letter for you now this best," answered the landlady. "Queer coincidence—the same address," she added, handing him a bulky envelope from the table.

The young man almost snatched the envelope from her hand then suddenly paled pale, compressed his lips and squared his shoulders, slowly mounting the stairway. The envelope was addressed in his own hand-writing, and in the corner was an official stamp. "Undelivered for. No forwarding address. Postmaster, Deerfield, Texas."

ROBERT HARPER, in "lower five" did not sleep much that night. The conductor only mildly threatened to eject him at the next stop.

On the second morning he stepped from the steps of the sleeper at the Deerfield station. His face was resolute and he [illegible] himself at [illegible] over his coffee

(Continued on page 34)


# $13.95

## NOW BUYS A STANDARD NON-SKID

# 30 x 3½

Ford and other light car owners can now buy a tire of recognized standing and quality at a price that Firestone knows is the greatest value ever offered to the motoring public.

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Firestone Cords also are offered at lower prices: 30x3½, $24.50; 32x4, $46.30; 34x4½, $54.90. Tire repair men, who judge values best, class the Firestone Cord as the sturdiest carcass made. Forty-seven high-grade car manufacturers now use it as original equipment.

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**GOPHER AND SQUIRREL KILLERS**

Made of poisonous gas.
Sure death to Gophers and Squirrels.
Price, $7.20 per gross. If your dealer cannot supply you, write to us.
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"Close-up" of Almond Branches, Showing How Nuts Are Borne.

# Attention!

THE FAMOUS

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This property comprises some 2544 acres, located at **the Home of the Almond,**

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**400 ACRES COMPRISE the PASTURE**

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**Plenty of Pump Water Can Be Developed**

Immediate vicinity is noted for its wonderful **Almond, Prune and Bartlett Pear Crops**

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**FRENCH EXPERTS** who have examined this land, pronounce it the **Best Grape Land in the State.**

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Adjoining properties are selling for as high as $150.00 per acre for unimproved land and $650.00 for improved.

**This Property Is For Sale—You** have ample time to investigate before the auction. **Would make excellent location for Country Estate.**

**Drive 5 miles west from Paso Robles on the ADELAIDE ROAD to property—Follow ARROWS.**

Write or wire for appointment to inspect property to Paso Robles, Cal., or to

**C. H. O'CONNOR & SON, Auctioneers,**
**626 PANTAGES BLDG., LOS ANGELES, CAL.**


# "SUNFLOWERS"

## Misnamed?

"Did you get that new hay-knife I ordered?" asked the Boss, as the new "hand" returned from a trip to town.

"No," replied His Nibs, "because the storekeeper insisted on giving me a little saw, and I didn't want to waste time arguing with him."

## Questions Answered

*(This month Miss Hazel Nutt propounds replies to more puzzling problems.—Ed.)*

What kind of ladder is best for gathering asparagus, and where can I get information about the culture of this plant?—M. A. Cityman.

Ans.—I would suggest that you get "Asparagus Tips" and digest the contents thoroughly.

What is the safest way to shoe a mule?—Anxious.

Ans.—Let some one else do it.

What is the correct length of a leg for a Percheron colt?—Breeder.

Ans.—The legs should be just long enough comfortably to reach from the body of the colt to the ground.

How can I cure a goose of excessive quacking?—Hector.

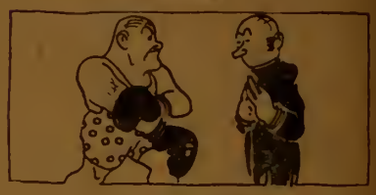
Ans.—Now, Hector, be reasonable. You might as well try to prevent the bleating of a cow.

What is the best pitch for a barn roof?—A. Handyman.

Ans.—The regular tar mixture is very satisfactory.

## Sounds Reasonable

*Skinflint is a thrifty guy*
*Never spends a penny.*
*But if all of us were like him,*
*No one would have any!*
—*Justin Nutt.*



## As Interpreted

"It is better to give than to receive," admonished the clergyman.

"Dat's what I figger, when it comes to exchangin' blows," answered Sam, the Slugger, strapping on his eight-ounce gloves.

## The Magic Formula

(Continued from Page 33)

fee and the morning paper, he formulated his plans for the day.

His attention was caught by the bold headlines of an article in the local sheet: "Mayor Promises Complete Exposure of Pumping Plant Scandal. Asserts Full Investigation Will be Conducted and Facts Made Public."

Robert clipped the article and put it in his pocket. Then he made some inquiries at the desk and walked out to survey his territory.

Strangely, enough, however, his first call was made, not at a business office, nor at the City Hall, but at an attractive bungalow on a quiet residence street.

His hand trembled nervously as he rang the bell. A young woman, in cap and apron, opened the door with caution.

"Pardon my early morning call," he apologized. "But I am looking for Miss Dorris Weston."

"She doesn't live here any more," was the reply.

"Yes, I know. I addressed a letter to her here only recently and it was returned. But can you tell me where she has gone?"

"No; I haven't the least idea. I'm very sorry. But I haven't even a forwarding address."

"How long ago did she leave?"

"Oh, a long time. Let's see—six months, at least."

"But isn't Deerfield her home? Don't you think I could find someone who would know where she is?"

THE young woman smiled at his persistence. He recognized the humor of the situation and grinned somewhat sheepishly.

"I beg your pardon. I know I'm presuming upon your good nature," he said, "but I am very anxious to find her. I—I have news for her that is of great importance."

"Oh, that's all right, I'm sure. But you see, the only relative she now has in this part of the country is her uncle, who lives on his ranch. She has always spent her vacation at the farm, or here in town, and often stays with us. This last time, however, she was so different." The young woman eyed him appraisingly. "You're a friend of hers?"

Robert nodded.

"Well, I hardly know what to make of it. Something must have upset her terribly, because she was in a blue funk when she arrived, and after a few days she announced suddenly she was leaving, never to return.

"Dorris always has been so dear to me, but this time I scarcely knew her. She said something about going on West—it was all very strange."

Robert's face had fallen during the recital. "I—I guess I've troubled you for nothing. But I am very grateful. Oh, I say, couldn't I call upon her uncle? What's his name?"

The boy's pathetic eagerness brought a motherly softness to her eyes, which fell before the intensity of his gaze.

Fumblingly he extracted notebook and pencil from his pocket. She turned away from him before replying in a low voice, "I will give you his name, but I'm afraid that won't help you. I saw him just the other day and he said Dorris had told him she was not going to return. He also said he could not tell anyone of her whereabouts. I'm so sorry—really, I——"

"You're awfully kind." Robert's composure recovered, he extended his hand. As he did so, a card, soiled and wrinkled, fell from the memorandum book which he still held.

He picked it up, started to return it to the booklet; then impulsively held it out to her. With mystified face she deciphered the somewhat faded writing.

"But—but, I don't understand," she said, re-reading the brief inscription.

He took the card and replaced it carefully between the leaves of the notebook.

"I didn't either at first," he said. "But the more you think about it, the more you'll see in it. And if it's true there's yet hope." And so he left her wondering.

(Concluded in September Issue)

THE final installment of Mr. Jameson's story is as replete with thrills and surprises as this part is with mystery. There's an exciting fight in the darkness—a timely rescue—a girl and a moon. But here we are almost giving it away! Our readers well may await with interest the coming of the big, fine September number containing, among other good things, Part Two of "The Magic Formula."—THE EDITOR.

## Useful Business Kinks

(Continued from Page 8)

middle of the stand-pipe, causing the water to flow up one side and over the partition to escape. At the top of the partition a piece of sheet iron, cut out in rectangular shape in the center forms the weir proper.

Then, 10, 20 and 30 miners' inches of water, respectively, are turned into the stand pipe.

A guage made of sheet brass is set in the back wall of the stand pipe and the height of the water for the 10, 20 and 30-inch flows is successively marked with a pencil on the guage.

Finally the guage is further marked in ten smaller divisions between each of the 10, 20 and 30-inch markings, and small permanent notches are sawed with a hack-saw to correspond with the pencil markings. Each of these marks then will register one miners' inch.

Care must be exercised to set the guage back in the wall of the stand pipe at the exact point at which it was first placed for the standard mark.—Victor W. Killick.

# U.S. SURPLUS GOVERNMENT HARDWARE and HARNESS — 15 CARLOADS

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New U.S. ARMY GOODS STORE

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NOTICE—Write for illustrated circular on these and hundreds of other surplus army hardware and supplies.

If you are coming to Los Angeles it will pay you to visit this busy store. You will save more than your expenses.

## WAGONS

You all know the standard government escort wagons. They were made to go through everything. They always reached their destination. They are built on the farm type. Two and three bolts where you ordinarily find one. They have a deep box body with fine comfortable seat. Complete with pole and all essential parts. Painted Government olive drab and were used very, very slightly and are practically new. An ideal wagon for general farm use. Heavy axles and heavy tired wheels at only a fraction of their value.

**Our price, $59.75 ea.**

## SADDLE BAGS

Made to fit with any saddle. They are made of genuine russet calfskin and grained finish on both bags. They were made of the best of leather and workmanship. Double pouched, approximately 12 inches by 12 inches. Both pouches joined by select calfskin. Length from end to end, 42 inches. Each pouch secured by triple straps with triple bronze buckles. Made by such renowned leather manufacturers like A. G. Spaulding. Each pouch lined with duck and especially fitted for knives and camping utensils. The duck bags are secured by genuine bronze buttons and removable if laundering is necessary. Cost the Government about $25. Our price

**$4.35**

## BRIDLES

All genuine leather Government cavalry bridles with bronze metal trimmings. Special United States Army polished steel bit with chain. Ask any doughboy what they are at this price.

Class B (reclaimed) $1.95
Class A (new) - - $3.95

## DISSTON'S HAND SAWS

New Henry Disston Saws No. 12, 26-inch. Nothing we could write about this bargain would tell you more than the word "Disston." If you say "saw" you mean Disston. "Nuf sed," and the price will sell the entire lot.

CLASS A (NEW)
**$2.95**

## HALTER CHAINS

Special heavy links—fifty-four inches long with ring and swivel holder. Every link special woven and sealed, made expressly for the army. The snap is 4½ inches long and has the new swivel head. While 8000 last we sell them.

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Class B (rec.) . . . **15c**

## STEEL HORSE COLLARS

These must be seen to be appreciated. Constructed of steel and finished like a mirror. They come made to stand the heaviest pulling and tugging. The hame strap tugs are all attached and made of the finest heavy leather. Every farm can use a dozen at this price. Remember, they are brand new and in original Government packages.

Class A (new) each **$2.45**

## SADDLES

Genuine McCLELLAND riding saddles now adopted for all riding academies, constructed of the best leather money can buy. Uncle Sam had them made the best. You will appreciate this one because the workmanship in each saddle was inspected and re-inspected before the Government took them. The trimmings are genuine bronze and were made to go through the war in France. Complete with surcingles and stirrups. You will be proud to have one. Get one of the three grades at a fraction of their original worth.

Class C (reclaimed) $5.95
Class B (reclaimed) $10.95
Class A (new $14.95
Remember all grades guaranteed.

## FEED BAGS

Listen to this. Made of the finest duck that money can buy and trimmed with leather that was tanned before the war started. A genuine heavy sole leather bottom with black, high grade strap 1¼ inches from bottom of bag to bottom. Copper riveted and double sewed throughout. Each one with a genuine leather breathing vent seven inches by three inches. Every bag stamped with the mark of Uncle Sam's Quartermaster Corps, at a price that sustainable.

Class B (reclaimed) $ .69
Class A (new) . . . . . $1.29

## RAKES

Superior Quality Steel Rakes—Extra long, select handle and first class tool construction. You'll want them for the lawn, the garden, the orchard or the farm. You never did nor never will get a rake like this at our price. Made heavy as intended by the army for raking coal. You'll be glad to own one.

Class B (reclaimed) 58c each

## WIRE FENCING

Extra heavy 1½-inch hexagonal silver finish net fencing, heavy gauge wire woven and heavily coated with galvanizing. Three times as heavy as the ordinary poultry netting. Four feet high, 140 running feet long, by the roll only

**$8.95**

## LANTERNS

Government new lanterns complete with globe, barrier and wick. Such high grade lanterns as Dietz and Adlake brands. These lanterns stood the rigid Government test and inspection. They are new and ready for use. One price, Class A (new)

**$1.48 each**

## Carborundum Grinders

High class grinders with fine gears. All one size, No. 9. Made by the Pike Mfg. Co. and finished high class. Wheel 1¼x6 inches with all attachments complete. Each packed separately in a case ready for shipment. Uncle Sam knew what the army needed when he bought these Pike Peerless Seniors, and while 53 last we will sell them

Class A (new) $5.95 Class B (rec.) $2.45

## Picket or Tent Pins

All steel with double swivel and ring top. They last forever. They are 16 inches long with fine tempered steel point. You know how the wooden ones always split. These you pull up and use continuously. You can drive them into rock as well as soft ground. Once used you use no other. Each one packed in a solid leather case with two straps sewed and copper riveted with brass ring and buckles. The leather case is alone worth double the price. Get a half dozen for your tent.

**49c ea.**

## PICK MATTOCKS

The finest steel, hand forged, went into these mattocks. They were bought to use in the hard, chalky soil of France. They are of the quality that cannot be surpassed. They are all new and all we ask you to do is to compare the price with any store or mail order catalogue and compare the tools. You'll give us your order for a dozen.

Class A (new) 98c each

## PICKS

Genuine high grade all steel Government picks. No pick was ever made of better material, all hand forged and sharpened. These picks are in their original cases, never unpacked. An elegant opportunity for contractors, railroads and engineering firms. Not a farm or a garden can afford to be without one at this price.

**98c**

## PICK HANDLES

Genuine Hickory 36-inch pick handles, the best Uncle Sam could get to put in these picks. Remember, they couldn't take chances with poor material. Good hardware was as necessary as good food and good ammunition. Pick handles you'll remember.

Class A (new) 29c each

## Horse and Mule Shoes

Blacksmiths and horseshoers listen to this. 75,000 horse and mule shoes—the best obtainable, in barrel lots of one hundred pounds only,

**3c lb.**

## Sledges

Only 200 of them, each 8-lb. double ended steel sledges. Select ash and hickory handles.

Class A (new) $1.19 Each

## Wire Nail Spikes

No. 10 common. By the keg only. 100 lb. kegs.

**$4.50 Keg**

## Blacksmith Tongs

20-in. Tongs, the best obtainable, only a small quantity. **59c**

## Spades

The ideal garden tool. Genuine steel spades—blade 7 inches by 12 inches with D type handles. Only one thousand of them, new and reclaimed. While they last they'll sell for **98c**

## Hay Forks

In 3, 4 and 5 prongs fine steel with the best hardwood handles money could buy. You'll need them at the price we will sell them for. New and reclaimed, **98c**

## Wood Hame, New

Steel Bound
Class A new ..... **95c**

## CROSSCUT SAWS

Genuine Disston's 2-Man Saws. Six foot each. Everybody knows what Disston saws are. They are new and the brand tells the story. Only 100 at this price. **$5.95**

BLACKSMITH SIDE CUTTING TOOLS
Genuine Heller Made .....950

## Double Trees

Four feet long, genuine hickory and ash. Reinforced and well constructed, ring clips set both ways and riveted. Made to last. The price:

Class A (new) 49c

## Single Trees

34 inches long, with fine center clip and end rings. Genuine ash and hickory.

Class A (new) 49c

## Horse Halters

Reclaimed genuine sole leather halters, all in high class condition. Remember, the Government used only the best.

Class B (Reclaimed) 89c

## Scrub Brushes

Genuine fiber, solid hardwood back with heavy canvas strap holder, oval shaped, 7½x4 inches.

Class B (Rec.) 19c Class A (new) 49c

## Leather Hair Brushes

Genuine sole leather back, 8½x4 inches, with genuine hair bristles. A wonderful brush with genuine leather strap holder.

Class B (Rec.) 95c Class A (new) $1.65

## BOILERS

This lot we want to tell you about. Listen to this: They were made to cook the food in for our boys over there. They are made of extra heavy twined metal 16 inches long, twelve inches wide and 8½ inches high. Capacity about 7 gallons. Made with cover of extra heavy metal to fit. Suitable for many purposes. The hotel, the summer resort, the camp, the home; in fact, they could be universally used. They make ideal bread or sugar cans. They cost several dollars apiece to make. We offer them to the public while they last.

Class B (slightly used) 29c
Class A (new) . . . . . 69c

## BUCKETS

Heavy galvanized buckets made of extra heavy galvanized sheets, reinforced bottoms. Suitable for contractors for cement or plaster. You couldn't beat them for fire buckets or for use where you want a bucket to last. Don't be misled by cheap priced buckets where there is no weight or quality. These buckets are the goods. You can order them by the dozen. You'll never regret it. In fact, you will re-order if we still have them.

Class B (reclaimed) 69c
Class A (new) . . $1.19

## AXES

This lot of axes was made from the best crucible steel. They were intended to cut through the woods of the Argonne and they have the stuff in them that anre could do it. These axes are complete with handles and should find a place in every automobile, in every farm and every camp. And the price will sell them.

Class B (reclaimed) 98c
Class A (new) . . . $1.95

## U. S. ARMY COTS

All steel folding 30 inches wide and 78 inches long. Double wired spring with end springs and side springs. Heavy angle iron ends and sides. Both ends collapsible and remember it is all steel construction—ideal for hotels, lumber and mining camps and bunk houses. This is the famous Liberty Army Cot at a fraction of its real value.

Class B (Reclaimed) $1.95 New Mattress to Fit, $2.25

## AXE HANDLES

What we said about the pick handles goes double. Genuine hickory with a silk finish. The axe feels like nothing in your hand when a handle like this goes on the axe. Everyone is just right to the hand. Wood chopping made a pleasure and the price is the most pleasant part of it all.

**29c ea.**

# What I have learned about Baking Cake

MRS. DE GRAF *enjoys a wide reputation as an authority on home cooking and baking. In this article she discusses a topic that appeals to both the palate and the purse. It is well worth reading — and saving!*

CAKE comes on the list of luxuries right now, so the utmost care should be taken both in the method of preparation and in the quality of material used. Good flour is absolutely essential for good results.

Take, for example, Sperry Drifted Snow Flour. It is an "all purpose" family flour—equally satisfactory for yeast breads, biscuits and cakes. It will produce the delicate Angel Cake as well as the standard plain cakes.

The best results and flavor will always be obtained from butter, but because of the high cost at the present time, butter substitutes are being used with satisfactory results. The mixing and baking of cake require both skill and judgment. The baking needs more study and care than the mixing, for no matter how well you have put the cake batter together, if the oven is not right the cake may be a failure.

There are two classes of cakes—those which contain butter or other shortening, and sponge cakes in which the butter is omitted.

The more the cake is beaten before the egg whites are added, the firmer its texture will be. Separating and beating the eggs gives a light, fluffy cake. The eggs can be added to the creamed sugar and shortening mixtures one at a time, unbeaten, but beating each egg vigorously when adding to the batter will produce a cake that is moist and fine grained, and that will keep in good condition for some time.

Belle Dausgraf

*Director Sperry Domestic Science Department*

# ORCHARD and FARM

SEPTEMBER, 1921

ESTABLISHED 1888
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Offices: Los Angeles and San Francisco

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(For other fair and show dates see page 6.)

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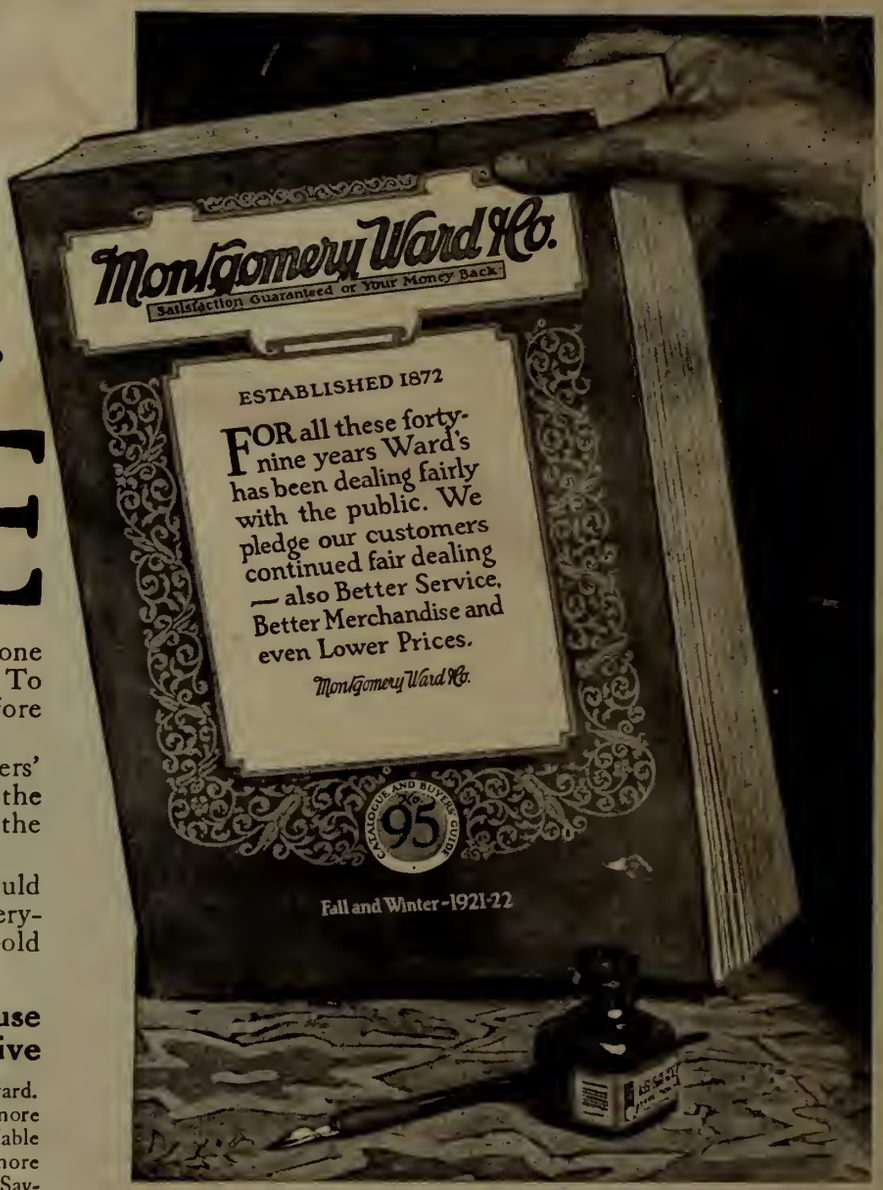


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# ORCHARD and FARM

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**OUR EDITORIAL POLICY**

ORCHARD and FARM is a magazine of, by and for agricultural people. We believe that to the tiller of the soil is due the best that life affords. We believe that he is the bulwark of the Nation. We honor him as the basic producer. His problems are our problems; his triumphs, our triumphs; his joys and sorrows, ours. To record his achievements and expose the duplicity of his enemies; to fight for and with him; to give him genuine help and practical information; to assist, entertain and inspire every member of his happy household—that is the policy of ORCHARD and FARM.

**SEPTEMBER IS HERE**

September is here with her bountiful store—
Comes half-forgotten boyhood lore
Into my heart with the autumn tang,
As I lean on the gate where the mockingbird sang.

A dreamy haze when the day is done,
Tempers the heat of the lowering sun;
And once again I'm a barefoot lad,
With nothing to do—but just be glad.

—Jason Wells

## Pithy Paragraphs

"There's nothing more tiring than retiring," remarked ex-Farmer Brown, sadly.

Folks who insist on having their own way sometimes have just that—and nothing else.

A fault-finder often overlooks the most likely location—himself.

Some men spend so much time preparing alibis they never catch up with the truth.

A good resolution is like a concrete roadway—it may crumble unless reinforced.

Take care of the pennies—and the dollars may go to one of larger vision.

Jas. C. Kellin

Editor.

### HELPFUL SUGGESTION CONTEST

At last the great contest has come to a close. The most successful ever conducted by ORCHARD and FARM, it has brought forth scores of valuable ideas, many of which have been published during the past six months.

During the month of September the judges will read and classify all the various entries, and the winners positively will be announced in the October issue. No doubt the work will be finished so that checks can be mailed even before publication of the names.

A number of the helpful suggestions appear in this issue and more will be published next month. Every one that has been printed will be paid for, and in addition, twenty-six fortunate subscribers will receive cash prizes, amounting to nearly $150. No more entries accepted after September 1.

Watch for the interesting announcement of prize winners next month!

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## Alphabetically Arranged List of Advertisements

Caught in the act of swindling, by the National Vigilance Committee of the Associated Advertising Clubs of the World, three fake promoters recently commenced serving sentences in the Atlanta penitentiary.

Behind the tremendous force of modern advertising, works this unseen but ever-active guardian of the public interest. That is one reason why advertised articles acquire and hold the public confidence. In these uncertain days especially, we are inclined to pin our faith to known institutions.

Money has assumed a value that it did not have two years ago, or even one year ago. It is spent less freely and more intelligently. It is well, therefore, that buyers do believe in advertisers and their products, for such are the bulwark of the Nation's business!

Having affixed his name to his product and published statements concerning it, the manufacturer feels a moral obligation to make good. And the buyer, realizing this, quickly shows his preference.

Make it a habit to keep in touch with ORCHARD and FARM advertisers. The following alphabetically-arranged questionnaire is published for your convenience. The answers to the questions will be found in the advertising columns of the pages numbered opposite:


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### HORTICULTURAL EDITOR

George P. Weldon

George P. Weldon, Horticultural Editor of Orchard and farm writes for no other agricultural magazine. Mr. Weldon answers questions of subscribers and contributes helpful, practical articles to every number. Be sure to read his especially valuable discussions of spraying, pruning and the home orchard this month.

### BOUQUETS AND BRICKS

Some bouquets have bricks concealed within them, but this certainly cannot be said of the many that ORCHARD and FARM receives from its readers. For example:

"We could not get along without your paper."—Mrs. Thos. Renck, R. F. D., Tulare, Cal.

"I have received a great deal of valuable information from ORCHARD and FARM and wish it all the success it rightly deserves."—S. G. Bramhall, Atascadero, Cal.

The only "brick" connected with one of these is the sender. Needless to say, we think all farmers are "bricks," and especially those who speak so kindly of our efforts.

Dehydration, very much in the limelight during the war, is one "War Baby" that survived. It is becoming more important every day. Professor Christie has prepared another highly interesting and informative article on this subject, for exclusive publication in ORCHARD and FARM. Coming soon.

### SEPTEMBER COVER DESIGN

Artist George Grant has caught the spirit of September in this month's beautiful cover drawing. And it typifies also, we believe, the new spirit of American young womanhood. Not many years ago, almost every woman was afraid to use a shotgun, and most would have regarded with horror the prospect of appearing in the sensible costume so generally worn today. Yes, times have changed, and Artist Grant, like all who contribute to California's leading farm journal, is right up to the minute and "First with the latest,"

*"Why, Fred, I didn't know you were going to whitewash the barn."*

*"That isn't whitewash. I've just been trying to teach this calf to drink milk."*

As a milk distributor, no agency is more effective than a hard-headed, long-legged, struggling calf. The milk baths advocated by eminent specialists are not new; in fact, they were invented on the farm. But skimming over these facts, let us not forget that ORCHARD and FARM subscribers get the cream of the agricultural news, fresh, clean and of high test. Whitewash and foam are all right in their place, but they won't take the place of butterfat. In the separator of public opinion, ORCHARD and FARM proves its worth. Please tell your friends why you like it.

### A Creed in Twelve Chapters

(9) The Real Measure.—It is not what a man gets but what a man is that he should think of. He should first think of his character and then of his condition. He that has character need have no fears about his condition.—Beecher.

# How It Pays

## To Use the Best Paint on the Farm

IT costs more to rot a house or barn than to paint it right. Depreciation costs more than good paint.

The best paint is the best protection, and it is protection that you're seeking. You can't protect your house with *color only*. You must use *good* paint—the kind of paint that *saves the surface*.

The best paint protects the wood, keeps heat, moisture and rain from creeping in and rotting it. It's the only inexpensive paint.

Such paint spreads easier—saves labor. And covers more per gallon. Figuring the lesser cost of application and the greater covering capacity, your best paint is actually *less costly on the house or barn* than cheap paint. Don't allow surfaces to rot. It costs less to paint them.

Paint with such paint regularly and your buildings are as good years hence as now. If you should sell you'd get an extra price several times your entire investment in good paint.

Fuller's Specification Farm Paints are the finest, therefore the "least expensive" we can make after 72 years' experience in the manufacture of paints for western use, where conditions are so different than elsewhere. Let Fuller specify for you and paint will never cost you anything because of what that paint will *save*.

# Fuller's
## SPECIFICATION
# Farm Paints

**House Paint - Barn & Roof Paint**
**Wagon Paint - Rubber Cement Floor Paint**

**M'f'd by W. P. FULLER & CO., San Francisco**

Pioneer Manufacturers of Paints, Varnishes, Enamels, Stains and PIONEER WHITE LEAD for 72 Years

Established 1849 Branches in 16 Cities in the West—Dealers Everywhere

For all exterior jobs of painting it is advisable to obtain the services of a Master Painter

## Ask Us For
# Free Advice

WE maintain a special department to give advice on painting to anyone who wants it. Its services are free to you.

We tell how to treat the old paint, what color scheme to use, how many coats, the type of brush you need, the best time to paint, etc.

Use Fuller Service as well as Fuller paints.

**HOUSE PAINT:** Fuller's Pure Prepared Paint, Phoenix Pure Paint, for Painting Houses.
The purest, best protective and most durable paint made. Made in 32 colors

**BARN AND ROOF PAINT:** A protective coating for barns, roofs, fences. Dries with a good gloss and wears. Economical in cost and dependable in quality. Six colors to select from.

**FLOOR PAINT:** Fuller's Rubber-Cement Floor Paint—sanitary, waterproof and durable paint for floors of kitchens, closets, etc. Attractive in color and gloss. Dries hard over night. Made in 12 colors.

**IMPLEMENT PAINT:** Fuller's Pacific Wagon Paint adapted for repainting agricultural implements, farm wagons, windmills and farm machinery. A glossy durable finish offered in 7 colors.

# Free Book
## Send Coupon

Mail the coupon for free book, "Save the Surface," which tells why good paint is important.
We'll also send a small catalog of Fuller's Specification Paints and Varnishes for the farm.
Send coupon now. It's well to know the reasons for good paint.

**W. P. Fuller & Co.**
Dept. F-54, San Francisco.

Please send me, without charge, a copy of "Save the Surface" and your small booklet of farm paints and varnishes

Name .....

Address .....

City ..... State .....

L. A. 46. Farm Paper. September Final O.K. for Publication

ORCHARD and FARM

VOL. XXXIII. SEPTEMBER, 1921 NO. 9

# Agriculture in Alaska—Part III.—Development of the Reindeer Industry

*OF the many unusual features published by ORCHARD and FARM, none has aroused more interest or comment than this series on Agriculture in America's "Farthest North." Those who fear a meat famine through extinction of the range cattle business may find solace in the potentialities of reindeer breeding in Alaska.—The Editor.*

By Frank J. White

WHEN the late Rev. Sheldon Jackson, who spent practically his entire life as a missionary among the Indians of Alaska, induced the Federal Bureau of Education to experiment with reindeer in the Territory, he builded better than he knew.

It was largely to humor a whim of the aged missionary that the Bureau of Education persuaded the United States Congress to make an appropriation for transplanting from Siberia and caring for a small herd of reindeer upon the Seward Peninsula of Alaska. (This far-northern body of land is surrounded on three sides by the Arctic waters, Kotzebue Sound, Bering Sea and Norton Sound.)

It was in 1892 that the first reindeer were placed in Alaska, only a few head being included in this herd, as it was only an experiment and a very doubtful one at that time. From 1892 until 1904, however, reindeer to the number of 1280 were imported to Alaska from Siberia. That number was the nucleus from which the present Alaska herds developed, and they now number from 125,000 to 150,000 head, ranging not only on Seward Peninsula but all over the lower reaches of the mighty Yukon and its tributaries, and even in the Kuskokwim Valley.

This last spring a herd of 2000 was established on Kenal Peninsula, which lies between Prince William Sound and Cook Inlet on the Southwestern coast of the Gulf of Alaska, more than 1000 miles from Seward Peninsula.

The primary object of introducing reindeer into Alaska was to make the natives economically independent, and this purpose has been accomplished to a decided and satisfying degree.

*Field of Finnish Black Oats at Alaska Experiment Station.*

The Federal Bureau of Education, having the natives of Alaska in its charge, was seeking some means by which they could be permanently benefited, and it remained for Sheldon Jackson, the venerable missionary, to suggest the method that proved to be so successful.

After it had been proved that Alaska was adapted to the development of the reindeer industry, a system of apprenticeship was evolved by the Bureau of Education. A native is required to serve four years in learning to care for the deer, after his services he receives six deer for the first year, eight for the second and for the third and twelve for the fourth. At the end of the fourth year he is a full-fledged herder and assumes charge of his own herd, he, in turn, taking on new apprentices.

Thus the system of instruction among the natives is perpetuated and any [illegible] herder can do so either by becoming an apprentice or purchasing deer from other natives. The result was that the [illegible] herding, herding was restricted to the native people, although a number of independent owners now are getting large holdings of animals. Indians are not permitted by the terms of the Bureau of Education to dispose of deer to the "whites," but the latter have managed to get possession of large herds, and they, of course, are at liberty to sell to whom they please.

Experiments with reindeer in Alaska have proved a great success, conceded by all familiar with the work. The deer, besides furnishing the natives with something to do, provide them with food, clothing and means of transportation and, where a local market is available, with a considerable source of income from the sale of meat and hides.

So thorough, in fact, has been the distribution of deer through the apprenticeship system, that the Federal Government now owns only three per cent of the deer in Alaska, nearly 70 per cent being owned by the natives, and the remaining 27 per cent by the whites and Laplanders, the latter acquiring their animals as pay for instructing in herding.

And, as the "Lapps" are not restricted in the disposition of their stock, it is from them, mostly, that the whites have acquired their holdings.

It is the white owners who are engaging in the industry for commercial purposes. In fact, it has grown to such an extent within the past few years that it has now reached the stage where outside markets are necessary in order that the surplus reindeer meat can be disposed of.

Thus it was that the last steamer to sail from Norton Sound last fall carried 96,000 pounds of reindeer meat to Seattle, from which point it was distributed throughout the country, and wherever there was demand for it. As reindeer dress from 125 to 150 pounds, it will be seen that the carcasses of between 600 and 700 head constituted this cargo.

Reindeer may be purchased for stock purposes from the independent owners at from $28 to $35 per head, the average price quoted last fall being $33. All communities in Alaska are not adapted to deer culture, as a certain variety of moss known as "reindeer moss" is necessary to their growth and development, although they do fairly well on general forage such as grass, brush, buds and leaves. However, the moss is found in nearly every portion of interior, Southwestern and Northwestern Alaska.

The rapid increase of reindeer is due chiefly to the remarkable hardihood of the fawns, for, contrary to general belief, reindeer are not highly prolific. The female deer usually gives birth to but one fawn a year, and in case of twins one or both usually die. But individual fawns usually are strong, and very fleet of foot, even when but a few hours old. Another reason (Continued on page 11)

# All Eyes Focused on Fall Fairs

*THIS is the Fair and Show season. Attend and suppart your cam-munity event and by all means plan to visit the State Fair and other important exhibitions annaunced in this number af ORCHARD and FARM. Nothing will da more ta stimulate business for thase wha deal with farmers than exhibiting at the Fairs. Nothing will aid the farmer mare in increasing his prafits, and salving pressing prablems of productian than to attend, for the agricultural fair and the live-stack shaw are great American institutions, of benefit ta all.—Editor.*

## The State Fair

"GEE WHIZ, they have everything in the world here!" This remark, made by a wide-eyed farm lad, was heard at last year's State Fair. But all-embracing as this great exhibition appeared to the thousands of visitors, it is to be excelled in many ways by the 1921 event, to be held at Sacramento, September 3-11.

Completeness is the keynote of this ever-growing annual exhibition. It covers horticulture, general agriculture, live stock, poultry; in fact, every branch of food production. Yet it is by no means strictly an agricultural Fair, for large and costly exhibits are devoted to mining, manufacturing, education and natural resources.

Every inch of display and exhibition space was contracted for a month before the opening, according to Secretary Charles W. Paine. Over 221,000 square fect of tent space has been provided. "In my twenty years experience in handling the State Fair, I never before have had such a demand for exhibition space," said Secretary Paine, recently.

A canopy for trucks and automobile accessorics, 120 feet by 320 feet, has been added to the mammoth "back to the farm" tent, 100 by 600 feet, which will contain the big tractor and agricultural machinery exhibition.

As usual, power-on-the-farm, exemplified by modern tractors, humming gas engines, the latest electrical equipment, and up-to-date field machinery of all kinds, will be prominently on display. An unusually complete automobile and truck show also is promised.

### PROFESSOR FLETCHER IN CHARGE

Professor L. J. Fletcher, widely known agricultural engineering authority and instructor at the University Farm at Davis, will have charge of the power and machinery exhibition.

A special feature this year will be the county exhibits, the entries including more counties and a better display than in any previous year, the management asserts.

Among the special events will be a student stock judging and live stock raising contest, with special emphasis on high-school vocational agriculture. In connection with the live stock show will be held two parades, in which all entries will be included.

### SPECIAL DAIRY PRIZES

In the dairy department, liberal cash prizes and several gold medals are offered by the State Agricultural Society for cheese of various kinds, including goat cheese; condensed and powdered milk, and in fact, all dairy products and by-products.

Increase in number and size of premiums, it is believed, will bring out more and better live stock than ever before shown. The premium list, in fact, provides classes of competition in every branch of agriculture and was designed especially to attract exhibitors from all sections of the State.

### FAST TRACK EVENTS

Lovers of horses and racing will be treated to fast harness and running races daily, witb an unusually complete horse show, including entries from all parts of the West, attracted by the large purses.

The night Horse Show will be more comprehensive than in past seasons, it is announced. A number of the most expert women riders and exhibitors will be seen, including Mrs. Charlotte B. Anderson, who is bringing with her a fine Kentucky stallion for which she is said to have paid $5500.

### FOR WOMEN VISITORS

Women visitors will find scores of interesting features, including a modern five-room house, which is to be used for demonstrating cooking and house work. The exhibitions in domestic science, manual training, art and science this year will be more complete than ever before.

Many annual conventions and meetings of associations, clubs and farm organizations will be held during State Fair week.

### SPECIAL OUTDOOR EVENTS

Arrangements have been made for generous outdoor entertainment, including band music and free attractions, as a variation from the sleek animals, monstrous pumpkins, incisious fruits and humming machinery.

It is the constant desire of the State Fair management to make the Show truly representative of every county. Entries in the various departments have closed, and the fair grounds and offices are humming with activity in preparation for the placing of exhibits.

Underlying the entire Fair, replete as it is with entertainment features, is the educational idea. Knowledge obtained from books, valuable as it is, cannot take the place of practical information which may be gained so easily at a Fair of this kind.

Here one may see live animals, new machinery, actual soil products, each represented by the very best example obtainable. No better opportunity is afforded ORCHARD and FARM readers to combine a pleasurable holiday with business and education than by attendance at the California State Fair—J. C. K.

*Left—Main exhibit building, State Fair, Sacramento. Below—Charles W. Paine, Secretary, whose enthusiasm and experience largely are responsible for the annual success of this great exhibition.*

### Coming Events

**California State Fair**—Sacramento, Sept. 3-11
**San Luis Obispo County**—San Luis Obispo, Sept. 5-10.
**Fall River Fair**, McArthur, Sept. 6-9
**Escondido Grape Day**, Escondido, Sept. 9
**San Joaquin County**—Stockton, Sept. 12-17
**Tulare County Livestock Show**—Tulare, Sept. 12-17
**Humboldt County Fair**, Ferndale, September 13-17
**Modoc County**—Cedarville, Sept. 16-17
**San Fernando Valley**—San Fernando, Sept. 19-24.
**Glenn County**—Orland, Sept. 19-24.
**Trinity County Fair**, Weaverville, September 2[illegible]
**Kings County**—Hanford, Sept. [illegible]
**San Diego County Fair**—Sept. 2[illegible]-24
**Fresno District**—Fresno, Sept. 2[illegible]-Oct. 1.
**Colusa County**—Arbuckle, Sept. [illegible]-Oct. 1.
**Orange County Fair**, Huntington Beach, Sept. 2[illegible]-Oct. 1
**Arbuckle Almond Show**, Arbuckle, September 2[illegible]-Oct. 2
**Ventura County**—Ventura, Oct. 2-3
**Inyo County Fair**, Bishop, Oct. 4-[illegible]
**Shasta County**—Anderson, Oct. 6-[illegible]
**Siskiyou County**—Yreka, Oct. 9-15
**Southern California**—Riverside, Oct. 11-16
**California Flower and Horticultural Exhibition**, Exposition Park, Los Angeles, October [illegible]
**Date Festival**, Coachella Valley, Oct. 21-[illegible]
**Calif. National Livestock Show**—San Francisco, Oct. 22-30.

## San Fernando Valley Fair of More Than Local Significance

ALWAYS alive to opportunities, Los Angeles County is looking forward with more than ordinary anticipation to the San Fernando Valley Fair, to be held in the town of San Fernando, September 19-24.

Conceived as a local project by leading business men, farmers and live stock breeders of this fertile agricultural district, the show gradually has assumed a larger aspect until now it is regarded officially as the Los Angeles County Fair for 1921.

### FOLLOWS STATE FAIR

Following closely after the State Fair at Sacramento, this comprehensive exhibition will afford an unusual opportunity for State Fair exhibitors to reach those in the Southland who were unable to attend the Sacramento event.

And this fair is given added significance by the fact that Los Angeles County is acclaimed the largest, agriculturally, in the United States, with a production of field crops, fruits, nuts and truck crops for 1920 of more than $52,000,000. The value of the orange crop, alone, for Los Angeles County, is said to have exceeded in 1920 the entire gold production of the State.

Added to the above impressive total is the value of live stock; more than $11,000,000 for Los Angeles County, as disclosed by the Federal Census.

### STRONG FINANCIAL SUPPORT

Endorsed by the Board of Supervisors and backed by great resources, this fair promises to be one of the outstanding events of the season. Here will be shown not only a great variety of farm products, but also some 800 head of cattle, sheep and swine, together with 150 head, or more, of the finest horses the West affords, including entries from Oregon and other distant States.

The Livestock Show will be under the management of M. H. Adamson of Adohr Stock Farms, one of the most

(Continued on Page 18)

*(1) C. R. Elkins of San Fernando, Director and Manager; (2) Mrs. Harry Huston, San Fernando, Manager Women's Department; (3) M. H. Adamson, in charge of livestock exhibits; (5) Hamilton ("Horse") Basset, Director Horse Show; (6) M. G. Dial, San Fernando, Vice President Fair Association; (Center) Livestock and Horse Show arena, 160 by 300 feet, said to be largest in America.*

**Danger to Poultry**—Don't allow your poultry to eat grasshoppers killed by poison bran bait! A number of cases of deaths from this cause have been reported.

**Plucking Live Geese**—Many breeders of geese pluck the feathers from the live geese at some time prior to moulting. Some pick every six weeks during the summer, and early in the fall, while others pick only once or twice a year, either in the spring, or in both spring and fall.

Feathers are considered ripe for picking when the quills are dry and do not contain blood. Both young and old geese are plucked. The average yearly production of feathers is about 1.1 pounds to the goose.

Geese should not be plucked during the breeding season. A stocking usually is placed over the head of the goose, and part of the soft feathers on the breast, back and sides and abdomen are pulled.

Enough soft feathers to support the wings always should be left. Geese feathers recently were bringing about 75 cents a pound for pure white; 65 cents for average white; and 55 cents for gray. These prices are for good, dry feathers.

**Need Hogs Root?**—In previous numbers, ORCHARD and FARM has emphasized the fact that rooting by hogs usually is due to improper feeding. A recent experiment emphasizes this conclusion. A pasture was divided into two equal parts, into each of which was turned a lot of weanling pigs. Lot 1 was fed corn from a self-feeder, salt, and all the water they would drink. Lot 2 was given the same feed and treatment, but in addition, these pigs were allowed access to a self-feeder containing tankage. Lot 1 rooted up the pasture from end to end. Lot 2 scarcely rooted at all, and because of their contentment, slept more and made much better gains.

**Likes Every Number**—"We like your magazine and dislike to miss a single number. It is both interesting and helpful."—Mrs. H. L. Miser, Delhi, Cal.

**Control of Field Mice**—With all the laudable work in destruction of squirrels and gophers, let us not forget the little field-mouse, a less serious pest, but a costly one in many localities. Here's a tip from the State College of Washington: Oats, strychnine and saccharin form a valuable compound for exterminating field-mice. If good steamed rolled oats are not obtainable, ordinary table oats may be used in the following proportions: For eighteen pounds of rolled oats mix one and one-half ounces of strychnine, one ounce baking soda and one-eighth ounce saccharin. This is all mixed with a quart and a half of starch paste and poured over the oatmeal. The mixture should be applied in small lots where the mice feed and kept away from chickens.

**Renews Subscription**—"We like ORCHARD and FARM very much and get many good pointers from it. We would like to renew our subscription."—N. F. Lorig, Hawthorne, Cal.

**Improved Dairy Methods**—Representatives of the "better way" in milk production are the principles recently adopted by Imperial Valley dairymen who plan to improve their methods under the State inspection system. Among the recommendations are: Use of fly-proof milk [illegible] with watertight floor, located on windward side of corrals and 100 feet distant from manure piles, horse [illegible]; cooling milk as rapidly as drawn and cream as soon as removed from separator; no mixing of [illegible] and cold cream or milk; sterilization of all utensils by submerging in boiling water two minutes or [illegible] twenty minutes; cleaning [illegible] with damp cloth or [illegible], use of small-[illegible] galvanized iron ware [illegible] with the milk; flush separator only with skim-milk; use screen lid on cream can when separating; no wet milking; ship no cans containing flies or dirt; keep milk house whitewashed; keep all dirt out of milk.

**Mineral Mixtures for Swine**—A simple mineral compound for feeding hogs is made as follows: Stir together equal parts by weight of air-slaked lime and salt, or of wood ashes and salt. A more complete mixture consists of equal parts by weight of air-slaked lime, salt and bone meal (or spent bone-black). A fairly complete mineral mixture, carrying essential elements in practical and well known forms is as follows:

| | |
|---|---|
| Salt, common, flake form | 30.0 pounds |
| Spent bone black, or bone meal, finely ground, or bone flour | 25.0 pounds |
| Commercial kainit, or potassium chloride, or wood ashes | 12.0 pounds |
| Sulfur, flowers of | 10.0 pounds |
| Air-slaked lime, or limestone, finely ground | 10.0 pounds |
| Glauber's salts or sodium sulfate | 5.7 pounds |
| Epsom salts or magnesium sulfate | 5.0 pounds |
| Copperas, or iron sulfate | 2.0 pounds |
| Potassium iodide | 0.3 pounds |
| Total | 100.0 pounds |

These mixtures may be self-fed, free-choice style, or combined with feeds. About one pound per month per hog is the allowance suggested for hand feeding. Tested by Prof. John Evvard of the Iowa Experiment Station, these formulas have been found to give excellent results.

**Fertilizing the Lawn**—"Burning" of lawn grass from application of fertilizer may be avoided by the use of a soil mixture. The United States Department of Agriculture recommends for "that jaded, faded appearance," application of a top dressing of two parts good, loamy soil, one part well rotted manure, finely shredded, and 1½ pounds sulphate of ammonia or nitrate of soda for every 1000 square feet. Such a mixture, evenly applied, usually results in stimulation and quick growth. If the grass is watered before the application is made, it should be soaked thoroughly.

**Cannot Do Without It**—"Just received your June issue and have enjoyed reading it very much. I do not want to miss a single copy of ORCHARD and FARM."—A. M. Porter, Junction City, Ore.

**Protecting Mesquite Wood**—At any time between April 1 and October 1 freshly cut mesquite cordwood or fence posts may be protected from attack by borers in a very simple manner, according to experimenters, who were aroused by the annual loss of thousands of dollars worth of this valuable wood in the Southwest. The method devised is simply exposure to the sunlight. The freshly cut posts are laid flat on the ground and after two weeks are turned bottom side up. After another two weeks they are turned again. The heat prevents attack by beetles and kills the grubs that have been deposited. It is suggested, however, that no mesquite be cut during the period mentioned except for immediate use. Posts cut between October and February and loosely ricked up for quick drying usually do not suffer materially from the borers. The beetles do not like seasoned wood, and the larvae cannot live, apparently, even beneath the bark of posts that have been exposed to sunlight.

**Considers Paper Essential**—Your paper is very essential to my business.—E. C. Hoover, Pixley, Cal.

**Tractors and Fall Plowing**—"A horse-killing job" is the term used by many farmers to describe fall plowing—especially after a hot, dry summer. It is in such work, as well as summer fallowing under a torrid sun, that the tractor comes into its own. Hundreds of farmers have testified, in fact, that they could not do fall plowing properly, if at all, with horses. With their tractors, however, they are able to attack perfectly dry land and tear it loose—often in great chunks, which, disintegrated by winter rains and cultivation, produce at length a fine, deep seedbed. Early, deep fall plowing long has been advocated by tillage experts. And the tractor, on hundreds of ranches, has made it feasible.—Albert J. Mason.

**Contains Valuable Information**—"I find ORCHARD and FARM very valuable and it contains many helpful articles."—Mrs. Fred Hangl, Earlimart, Cal.

**Concerning Tractor Values**—The power of a tractor engine is dependent largely upon the good fit and accurate timing of the valves. The purposes of the valves are to permit the fuel and air mixture to enter the combustion space in the cylinder, to inclose tightly the burning gases during the power stroke, and to give the burned gases an opportunity to escape on the next stroke. A good fit is essential, because the valves must hold the gases within the cylinder under pressure at times, and even a slight leakage may mean a big loss of power. Furthermore, if the valves are not properly timed, it is equivalent to permitting a deliberate leak of the gases from the cylinder, which again means loss of power. Valves should be examined at regular periods and if they are pitted or show any indication of leakage, or if the seat of the valve is not perfectly bright all the way around, then grinding is necessary. On most tractor engines it is difficult to get valve timing out of adjustment so long as the cam shaft retains its relative position, or the cam shaft gears are not changed. If by any chance they do become out of place, leave their adjustment to a tractor expert, or if it is necessary to adjust them without the aid of such a man, be sure that explicit directions are secured and followed. —George E. Fuller.

**Source of Practical Help**—"ORCHARD and FARM has been the only practical source to which we could turn for the answers to problems which come up every day."—Mrs. K. E. Fawcett, Newman, Cal.

**September Poultry Hints**—All hens not to be carried over for another year should be culled and marketed, making room in the laying quarters for pullets. It is well to feed and handle the pullets separately. Put the henhouse in shape for winter, repairing leaks in the roof and giving the whole plant a thorough cleaning. Spray with a good disinfectant or whitewash. If the henhouse has a dirt floor, remove the top four inches and replace with fresh, dry earth, sod or gravel. Don't let the young stock crowd. This encourages development of disease.

**Reads Every Word of It**—Enclosed find my check for one year's renewal to Orchard and Farm. I like your paper and read every word of it.—P. H. Anderson, Albion, Calif.

**It Pays to Spray Cows**—When dairy cows can be sprayed at a cost of 1 cent per head per day, or less, the dairyman will find this small investment profitable. The irritation of the animals caused by flies lowers milk production, while their restlessness increases difficulties of milking. One good type of spray recommended by a practical dairyman is made from 4½ quarts of coal tar dip, 4½ quarts of fish oil, 3 quarts of coal-oil, 1½ quarts of oil of tar. Dissolve three pounds of laundry soap in water, add the above ingredients and bring up to 30 gallons with luke warm water. Spray twice a day, in the morning after milking and in the afternoon when feeding.

**Electric Light and Power**—One of the large manufacturers of farm lighting and power plants now distributes twenty-five styles and sizes. One complete outfit, furnishing enough power to operate motors up to one-half horsepower, sells for less than $300. Over 135,000 installations have been made by this firm alone. At present low costs for modern lighting there is little reason to retain the old-fashioned, disagreeable, odorous, dangerous kerosene lamps. Many California farmers are lighting with "juice" taken from the power lines but thousands, as in other States, enjoy the independence of the home lighting plant.

## Ben Gonnadooit Says

*I've writ so much about my troubles thet I'm glad t' be able this month t' tell somethin' cheerful; namely, i.e. and viz, how I made some extry money by usin' my reddy wit.*

*Y' see, gener'ly I don't have no luck raisin' spring pigs, but this year th' weather was favor'ble, an' I reckon I must have forty or sixty scattered about th' place, although I ain't never rounded 'em up t' count 'em.*

*But anyway, I hadn't made no plans t' feed so many, so I was caught short o' grain and paster. Well, about this time my neighbor, Jenkins, was complainin' thet he couldn't sell his potatoes; said he was disgusted an' was going' t' cart 'em off and dump 'em in the ditch. Right away then I was struck with a idea.*

*Recallin' that we had a coupla Liberty bonds, I told him I'd give him the bonds ef he'd let my pigs run in his field and eat them spuds. And, would y' believe it, he snapped me right up, opened th' gate, let in th' pigs and come right over and got th' bonds.*

*This is what I call co-operation! He was spared th' expense of cartin' off th' spuds and plowin' th' field, because the hogs are rootin' it all up fer him. Whilst I got some good feed fer much less than I would 'a paid fer grain.*

*My wife was hoppin' mad when she found th' bonds was gone outa her dresser drawer, where she'd be'n keepin' 'em fer a rainy day. Said prob'ly Jenkins would 'a be'n glad t' let th' hogs in fer nothin'!*

*Ha-ha—ain't that jest like a woman! They are mighty nice t' have eround t' do th' cookin' and washin' and t' split wood, but they certainly ain't got no business jedgement.—Ben Gonnadooit.*

**$13.95 Goodyear Raincoat Free**

Goodyear Mfg. Co., 1449-R Goodyear Bldg., Kansas City, Mo., is making an offer to send a handsome raincoat free to one person in each locality who will show and recommend it to friends. If you want one, write today.—Adv

# Tie the Orchard to the Cow

*PEACHES and cream from the same ranch! Seems logical, doesn't it? Mr. Jones contends that the deciduous or citrus fruit grower who buys canned milk for the baby and the cat is behind the times. And he supports his argument with testimony from successful orchardists who assert they have solved their fertilizer problems.—Editor.*

By Robert E. Jones

CONTRIBUTING EDITOR OF ORCHARD AND FARM

A DEEP jet night, with heavy, scudding clouds that obscured the stars.

The suggestion of crunching wagon wheels, quickly lost in the rustling of the roadside trees before a gusty wind.

Finally a gabled wall loomed ahead in the darkness. The driver cupped his hand and listened intently; then, fastening his reins, dropped to the ground with a cat-like spring. He began to work rapidly, noiselessly. Apparently he was undiscovered. But no——!

A second figure appeared and as suddenly leaped from the shadow of the barn. A scuffle! Muffled curses! Heavy blows! The sound of a falling body! Stillness. Then a tiny circle of light flashed from an electric pocket lamp and revealed a swarthy face—that of the driver of the mysterious wagon.

"Ah ha, as I thought!" cried a deep voice of triumph. "Manuel Rodriguez, the manure bandit. Caught at last!"

The manure bandit is not a movie actor, but a reality. He knows where he can sell his goods—no questions asked. And he has learned to work during dark nights.

But his days are numbered now; those farmers who have not flush systems in their barns are learning to spread manure daily or to keep the pile a safe distance from the road. For that is the only way they are sure of cashing in on it.

### "WORTH WEIGHT IN GOLD?"

"I sold the manure around my feed racks at 5 cents a cubic foot," a Southern California dairyman remarked recently. "It was pretty well filled with straw and as I had plenty of better stuff for my alfalfa I let it go. But, do you know, I had to watch like a hawk the Mexican who came after it to keep him from loading the better grade stuff. Finally I told him if he wanted any more I would stake it out, and if he crossed the line I'd take a shot at him. He hauled twenty miles."

The fruit growers of Southern California especially are in dire need of manure. They need the barnyard fertilizer to keep the soil friable and the trees bearing and they are about ready to go to any means to get it. If the acute situation becomes more acute, it would not be surprising soon to see "Manure, Incorporated," appear on the stock exchange list of choice securities.

Farm Adviser Robert Hodgson of Los Angeles County told me recently that some serious-minded men were considering the economic feasibility of importing manure by the trainload from the Kansas City stockyards.

And E. A. Bost, a Corona dairyman, quoted above as the man who had promised to shoot the manure poacher, informed me that a neighbor of his with twenty-five cows received $50 a month for the privilege of scraping his corrals. This means that each cow give him $24 a year clear profit even if his margin on butterfat or whole milk was small. But don't take this as a "hunch" that the dairy industry is a bonanza. The point is that Southern California specialty fruit growers must have the barnyard kind of fertilizer.

### PROFITABLE CONTRACTS

"We get $1.50 a ton for the manure as it lies in the corral," George W. Brown of Burr Farm, just outside of Los Angeles, told me when I visited the place. "See that spur track over there? They run a steel coal car into the yard, clean up the corral with Fresno scrapers and take it away by rail. And usually a great deal of yard surface goes with it, as you'll notice our soil is rather sandy. In other words, we get our paddocks cleaned up regularly and are paid $1.50 a ton velvet for the scrapings. When the contract is out we'll get $2.50 a ton."

It might be stated here that Burr Farm really is only a series of feeding paddocks for 300 cows, for it comprises but twenty-five acres, and all the feed is hauled onto the place by rail, motor truck and wagon. Even the ensilage material is hauled in from fields many miles away.

Across the railroad from Burr Farm a big milling concern has a feed yard with ten acres of cement floor to save all the manure. It fattens steers on cotton seed hulls and the manure goes out by the train load at $4 a ton. Any one who has manure in Southern California does not have to advertise—Christopher Columbus is searching for him.

It is the old story of a new country that has expended lavishly of its soil capital without an eye upon the ultimate future. No, it is not a condition to "view with alarm," for it has happened before and probably will happen again, as long as there is new land. Nature always is balancing, compensating, and a man must learn, apparently, that his soil is starving just as a baby learns to walk—by experience.

There are many, though, who learn too late. Seated on a sack of barley a few days ago, I listened to the auctioneer crying a sale of dairy cows on a Central California farm. The owner was going out of the dairy business because it had not paid him. He said that the labor problem occasioned too much worry. He was a city man and had tried to manage his place from a distance. He had leased the farm, for he could not make a go of it with the labor he was able to get. Probably that was the real reason for the failure.

But there was another contributing cause. Out next to the big barn was an enormous mound of manure, enough to fill a small train of coal cars, apparently the accumulation of many seasons. At the edges the grass and weeds had shot up over the pile, rank and luxuriant. One could see that richness had been leached into the saturated soil for years. Yet the alfalfa patch over to the west of the barn was ragged and blotchy. Fox tail and other weed plants were crowding in upon the fodder plant, and it was putting up a weak resistance. I'll venture that alfalfa field did not yield a third of what it did in an earlier time. Some day somebody will learn what's wrong with that farm and will buy a manure spreader.

### CHANCE FOR AUCTION SALE

I wondered then what would happen if that great mound of manure suddenly could be transplanted 300 miles to the south, into the center of the citrus district. There no doubt, it would be surrounded by an eager throng with dirt wagons and motor trucks, just as two belligerent boys are surrounded when they start for the alley. And an auctioneer could clamber to the top of the pile and knock it off to the highest bidder at $4 to $5 a cubic yard without a bit of trouble. If it were left over night, an electrically charged wire fence or a squad of armed regulars would be a sensible precaution.

"What is the solution of the citrus grower's problem?" I asked Mr. Bost.

"More cows, in combination with orcharding," he said. "Of course, I'm soon to be a breeder of registered stock and possibly you will say I am prejudiced. But ten years ago I noticed that my soil was going back. I don't happen to be a fruit grower, but I have about 200 acres of farming land—had been growing corn, alfalfa and barley in rotation and selling it off the place. Everything went away on wheels. When my yield dropped off I stopped and took an accounting. There was but one thing to do, and that was to get cows. I must have barnyard fertilizer. I must feed my stuff and take the profits out of butter fat and milk. I could no longer chance selling the fertility direct, for sooner or later I would be ruined or would have to go out and buy manure, just as others are doing now.

### COWS BRING BACK FERTILITY

"To make my story short, I bought the cows and my soil has been steadily on the improvement since that time. I spread the manure regularly. Much of it is run out into the fields of alfalfa with the irrigation water direct from the barn, and I don't lose any of its strength. At first I had some surplus alfalfa to sell, but my herd of cows grew, and the last few years I have fed virtually everything I have raised on the place."

That Bost has prospered as a result of his revised method of farming may be judged by an auction sale of grade cows which he held recently. He sold twenty-three animals, all high-grade Holsteins, at an average of $268 a head, which is quite some average for a grade cow. And the highest of these, a second-calf heifer, went at $700—a grade, mind you. It is said this is a world's record price for a grade. Bost had put Farm Bureau Cow Testing Association records on all of his cows, and his neighbors bought them because they knew what these cows had done.

### WHERE FRUIT GROWER COMES IN

And now we get down to what is coming for the specialty fruit grower and his famished orchard. The fruit grower is going to become a livestock farmer as well as an orchardist. He will be forced into livestock farming to protect his orchard soils from starvation. Many orchardists already have made the change and the tendency is decidedly that way.

"Hitch your wagon to a star," somebody once told the young man. For the orchardist of the irrigated West it might be made to read, "Tie your orchard to the cow."

It has been done with success. Not many miles from where I write [illegible] increasingly productive fruit farms of

(Continued on Page [illegible])

### RIME OF THE SPECIALIST

Oh, I was a typical orchard crank—
A specialist, if you please—
And I very nearly broke the bank,
A'doctoring up my trees.
I fertilized with this and that,
But still the yield grew less.
If it hadn't been for the family cat,
I'd now be broke, I guess.
For our cat refused to eat canned milk.
My wife then bought a cow,
Which raised a calf—and of their ilk,
I own a dairy now.
Yes, I was a radical orchard fiend,
And, at first, it made me sore—
But, thanks to the cat that wouldn't be weaned
I can pay my bills once more.

—Justin Nutt

(Written for ORCHARD and FARM Copyright.)

# THE MAGIC FORMULA

By Albert Constant Jameson

(Illustrated by George Grant)

IN TWO PARTS—PART TWO

THE STORY THUS FAR

ROBERT HARPER, a young man without home or close relatives, discouraged by circumstances, returns for a visit to the town of his boyhood. He asks his old friend, the Rector, for advice and assistance. After a long talk, the Rector hands him a hastily written "text," which Robert stuffs in his pocket. At first inclined to destroy the minister's card, he studies it, and as a result changes his entire attitude toward life.

Applying for a position, he is successful in establishing himself with Mr. Langly, president of the Hillhurst Engineering and Construction Company, who after a few weeks sends him upon a confidential mission for the firm to the town of Deerfield, Texas.

Just before his departure Robert receives a body letter which he himself had mailed to Deerfield, Texas, and which was returned "undelivered; no forwarding address."

Upon his arrival in Deerfield he inquires concerning the young woman to whom he was addressed this letter, only to learn from her friend that she has disappeared, stating she intended never to return and leaving no address.

ROBERT'S first introduction to the politics and intrigue of an overgrown southern town was a revelation to his unsophisticated mind. And soon became apparent to him that, as elections approached, the good name of his firm was being made the football of opposing factions.

How, in the days that followed, he managed to obtain a position as reporter on one of the local papers; how he became acquainted with the city officials; and how he uncovered the plans of those who were seeking to oust the party in power—all these events made an interesting chapter in his life. But they are of importance here only because they led up to a startling climax.

Robert had been in Deerfield just a month, when he found himself one wintry moonlight night uncomfortably ensconced in the crotch of a tree. It was above the open window of the pumping plant, which was situated upon the outskirts of the town. Within, he could hear the motors whirring steadily. The attendant, in oily overalls, sat near the door, chair tilted back, an open magazine on his knees, and eyes half-closed, dozing. With heart-beating heart, Robert watched. An owl above his head suddenly hooted, his taut nerves responded with a jump.

Presently he discerned a stealthy movement on the opposite side of the building. Two indistinct forms approached, paused, then hastened across the intervening space into the shadow of the wall.

Still he waited tensely. After a moment the mysterious pair appeared at the corner of the building. The attendant, all unaware of danger, now slept in his chair.

Before Robert realized what was occurring, an arm shot out, there was a blow, and the unfortunate watchman crumpled, sliding heavily to the floor. Immediately both men were upon him. A struggle was produced and the unconscious form dragged into a corner.

As the blow fell, Robert, with a smothered exclamation sprang from his perch in the tree. As he started to run forward, his foot struck a heavy stick, which he picked up. In a moment he stood in the doorway.

The men were working quickly. One, with a large knife, was tampering with the mass of cables and wires near the switchboard. The other was leaning over the largest motor, holding a heavy bottle from which he was removing the cork.

Robert took in the situation at a glance. Here was cause for action; they were injuring the machinery belonging by his company. There was no time to lose. Without stopping to consider the consequences, he let fly his club. It struck the nearest man on the neck. The fellow staggered, the bottle rolled to the floor and the room was filled with choking fumes.

The cudgel had no sooner left his hand than the second intruder was upon him. Dodging a vicious blow, he grappled with the man. Then he stopped, the electric lights extinguished. Robert felt himself lifted as the fellow with a grunt threw into the fray. He felt a pair of powerful hands clutching at his throat. A terrific blow fell upon the back of his head. Then his brain reeled. Dimly he heard a woman scream. Pistol shots rang out from beyond the building. He lost consciousness.

"ROBERT! Robert, dear."

Was this voice real, or was it simply another phantom in the torment of mixed sensations tugging at his addled brain? He stirred, raised his hand falteringly towards his head. It encountered a soft arm.

"Bob! Speak to me."

He touched the arm again to make sure he was not dreaming. A trembling little hand closed over his. He forced open his eyes. There, bending over him, only half discernible in the darkness, was a face that he knew. It could not be—oh, but it was—

"Dorris." His lips framed her name, but it came only in a hoarse whisper.

"Yes, yes. It is I, Dorris. My boy! Are you badly hurt? Where is it? Your head?"

*"It is I, Dorris. My boy! Are you badly hurt? . . . . Gently she . . . . touched his cheek with soft lips.*

Gently she raised him and touched his cheek with soft lips.

"Drink—water," he gasped.

"Yes. Wait, I'll get you some. Here!" She placed a soft sack of engine-waste behind him. "Now lie back. That's right."

In a moment she was at his side again. "I found a cup at the hydrant, dear. Now!"

He clutched the cup and drank with difficulty. Then she moistened her handkerchief with the cold water and bathed his face.

"What happened? Where am I? Dorris, is it you?"

He was recovering his senses rapidly. "I remember! Those thugs! They were tampering with the machinery. I had a fight with them. But you—Dorris, where did you come from?"

"I was driving by, alone. I came down from Uncle John's this afternoon in his car, but had engine trouble, so I was awfully late. I slowed down when I saw the lights go out and heard the shouting. Then I saw the struggle here in the doorway. I had uncle's revolver and fired into the air from the machine.

"Then the two men ran into the trees, sprang into a little roadster standing beside the highway and drove off like mad.

"I was frightened and started to go on when suddenly I saw someone lying across the doorway. I didn't know who it was, but somehow found courage to leave the car and run over here. When I found it was you, I was nearly overcome. I thought you were killed.

"That's all," she concluded, breathlessly, "except I've found you aren't dead and I'm so happy."

The reaction from her fearful experience brought a flood of tears. And by now Robert found strength to take her in his arms.

"My girl. My darling. You are brave. I love you," he whispered brokenly.

ONLY the moon above the trees saw them there among the wreckage strewn about the lonely building. Finally Robert got to his feet. He found he was able to stand; then walked a few steps experimentally. Frightened now by the very stillness of the place, the girl pressed closely against him. Suddenly they were startled by a low moan. Dorris suppressed a scream.

"The watchman!" ejaculated Robert. "Poor fellow! They struck him down, too, and bound him. We must get him into town."

The attendant lay in the corner where the attackers had thrown him. Quickly the rope was untied. Between them, they dragged the man to his feet. Painfully the trio made their way to the automobile standing at the edge of the highway.

"Oh, I forgot." Robert stayed the girl's hand as she reached for the gear lever. "I must go back and see if those fellows left anything."

He walked rather unsteadily to the power house. Striking matches, he

(Continued on Page 25)

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# What's What in the Orchard--Practical Information Boiled Down

By George P. Weldon

CONTRIBUTING HORTICUTURAL EDITOR OF ORCHARD AND FARM

POMOLOGIST, CHAFFEY JUNIOR COLLEGE OF AGRICULTURE

## Fall Spraying for Black Scale on Deciduous and Olives

Musicians are like orchardists—
They both can make more kale
By working in close harmony
In running down the scale.

ONE of the most familiar scale pests of citrus as well as certain kinds of deciduous trees and olives is that species commonly known as black scale, bearing the scientific name *Saissetia oleae.*

While citrus growers have spent millions of dollars in fumigation for the control of this insect, it is the exception and not the rule to find the grower of olives or deciduous trees spraying for it. Yet the olive, apricot, plum, prune, pear and occasionally the peach, may be so badly attacked as to render low grade much fruit that would otherwise be of high quality. Of the deciduous fruits none is more susceptible to injury than the apricot.

### HOW TO DETECT SCALE

The presence of the scale is detected by the black discoloration of the foliage on infested trees, due to a fungus which grows in the liquid droppings of the scale, which are sticky and which are known as honey-dew. The honey-dew settles upon the foliage and fruit, furnishing an ideal medium of growth for the fungus.

### CONCERNING BLACK APRICOTS

The very objectionable black color of apricots, which is seen so often as they are being packed, dried or unloaded at the cannery, should put the grower on his guard. If losses are suffered as a result of this low grade fruit, spraying to control the scale will prove a profitable investment.

The work in the deciduous orchard, for best results, should be done in the fall shortly after the leaves have dropped. At that time the scales are small and the spray will kill them more readily than when they attain greater size. The same recommendation applies to the olive, and spraying should not be delayed long after the crop is removed from the trees in the fall.

The most satisfactory spray which has been used for this pest is oil in the form of an emulsion. The writer has used some of the proprietary preparations known as "miscible oil" or "soluble oil" with very good success. Miscible oil usually is applied at about 10 per cent strength, although a lesser strength may give good results.

### CAREFUL SPRAYING ESSENTIAL

Scale insects of all kinds breed so rapidly that a slight infestation today may mean severe infestation in a few weeks' time. It becomes essential, therefore, to put on a sufficient amount of spray to soak thoroughly each individual scale on the tree.

Theoretically this can be done; practically it cannot be. There always will be enough scales left, even after the most careful spraying, to reinfest the trees after a time. The effort must be made, however, to make a 100 per cent kill, and a good sprayer will not miss many of them.

Many apricot orchards that have been visited in Southern California are severely infested with black scale this season and plans should be made now for the spraying work this fall.

In addition to its value in destroying black scale, the oil emulsion spray will kill brown mite eggs frequently found on deciduous trees. Also it has a generally stimulating effect, and the trees sprayed with it are inclined to have a heavy, dark green foliage, in contrast to the lighter green of unsprayed trees.

*Left—Twig from tree sprayed with miscible oil. Right—Unsprayed twig.*

The accompanying photograph clearly and accurately shows a comparison between sprayed and unsprayed apricot twigs. These were cut from an orchard where miscible oil was used very early last spring. The condition of the twigs in "check" or unsprayed trees is shown by the numbers of attached scales, while the freedom from the pest is illustrated by the clean twig, which was characteristic of those from sprayed trees.

Often it is difficult for the fruit grower to decide whether it is necessary to spray. He may judge of the necessity, first by the abundance of the black, soot-like fungus, and later by the presence of the small scales on the tender growth or on the foliage, before the leaves drop. Ants crawling over the branches also are a good sign of infestation. Usually they are on the trees for the purpose of feeding upon the honey-dew.

## When It Comes to a Real Fair—Just Leave It to the Youngsters

ORDINARY agricultural fairs are commonplace things—but not so the exhibition recently planned and conducted by 75 boys of the Junior Farm Center, Chaffey Union High School, Ontario-Upland district, San Bernardino County.

The idea originated with Chas. Perrin, in charge of boys' club work in the institution, and the success of the event was due largely to his leadership.

The fair took place at the time of the annual San Bernardino county farm bureau picnic. Automobile sheds were converted temporarily into quarters for hogs, cattle, goats, chickens and rabbits.

Every boy of the Farm Center who is conducting a livestock project was there with his favorite pets, and the showing made was worthy of folks much older than those who took upon themselves the entire responsibility of arranging the details.

### BOY TAKES LEADERSHIP

Leo Gardner, president of the Junior Farm Center, and also by virtue of his office, director of the County Farm Bureau, was one of the chief moving spirits among the boys.

In what better way can a boy's interest be aroused in things agricultural than through some organization of which he is one of the active members? The Junior Farm Center at Chaffey has come to stay, and the fair which so auspiciously had its beginning may be looked for as an annual event of this organization.—G. P. W.

## Selecting Varieties for the Home Orchard

ALMOST every one who owns a home, especially in California, is interested in the growing of fruits for family consumption. The following suggestions, therefore, may be in order and helpful to the reader who does not know what varieties to plant.

The home orchard, it must be agreed, presents peculiar problems. Whereas the commercial grower makes a special study of his business and accumulates the necessary equipment for its care, the home fruit raiser frequently does not possess even a spray pump. In addition, he may lack knowledge of just what must be done in order to attain success. Yet the home orchard is very much worth while.

Wise choice of varieties means much toward success. Cross-pollination should be taken into consideration, and varieties that are known to be "interfertile" should be selected. But if it is desired to plant several varieties of any fruit, they ought to be chosen with respect to their time of ripening, for a succession, beginning with one of the very earliest ripening kinds and ending with the latest, will increase the value of the orchard.

The following list of deciduous fruits is suggested for home planting. There are, of course, a great many other good varieties that might be chosen, but these are named because of their general adaptability, time of ripening and ability to fertilize one another.

### VARIETIES RECOMMENDED

**Apples**—Red Astrachan, Gravenstein, Delicious, White Winter Pearmain.
**Almonds**—Nonpareil, Drake Seedling.
**Apricots**—Royal, Moorpark.
**Cherries**—Black Tartarian, Napoleon (Royal Anne).
**Figs**—White Adriatic, Black Mission.
**Peaches**—(Freestone) Early Crawford, J. H. Hale, Salway; (clings) Tuskena, Sims, White Heath.
**Pears**—Seckel, Bartlett, Bosc.
**Plums**—Santa Rosa, Wickson, Kelsey.
**Prunes**—French, Imperial.
**Walnuts**—Placentia, Eureka.

### NON-DECIDUOUS FRUITS

**Olives**—Mission, Manzanillo.
**Oranges**—Washington Navel, Valencia, Dancy Tangerine.
**Lemons**—Lisbon, Eureka.
**Grapefruit**—Marsh Seedless.
**Persimmons**—Hachiya, Hyakume.

### THE RARER FRUITS

Among the newer fruits, such as avocado, Jujube, Feijoa, loquat, etc., there are many varieties, a considerable number of which still occupy an experimental place and the writer does not feel competent to make recommendations concerning them.

Nurserymen who are growing these trees, however, usually are quite well

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A style show of 200 famous horses of the Pacific Coast. They will be seen in action, running, jumping and in amusing games. Every rider, ring master, attendant and groom will be garbed in the most superb attire. It will be a stylish, genteel performance that will stand out in your memory.

### Tractor Working Demonstration

See in operation the different kinds of tractors, from the largest to the smallest, combined harvesters, grain and bean threshers, power cultivators, sub-soil and deep cultivators, automatic hay loaders, plows, harrows, automobiles, trucks and trailers. The tractor demonstration will be larger than anything of its kind ever held in the Southland and will include a complete POWER FARMING EXHIBIT.

### American Poultry Association Show

The Poultry Show will be the only official American Poultry Association Show held in Southern California this year, and is attracting the poultry breeders from all southern parts of the State.

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Merry Go Round, Ferris Wheel, Side Shows, Chance Games, a wonderful Band and a Dance Pavilion with dances held by the Inter Post of the Valley Posts of the American Legion.

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**Director of Fair**

**Chamber of Commerce Bldg.,**
**San Fernando, Cal.**


[illegible]ed regarding the good points of [illegible]rious varieties, and may be de[illegible]pon for valuable suggestions. [illegible] the foregoing list is short, it [illegible]n "pruned" to include only those [illegible] that possess much merit. [illegible] adaptability to local condi[illegible]y make certain departures [illegible] and no claims are made that [illegible] of varieties is best under all [illegible] conditions of soil and [illegible]. P. W.

---

[illegible] Very Much—I like your [illegible]h, so please mail [illegible] possible. I am [illegible] Mrs. G. [illegible]

## Cleft and Side Grafting of Avocados

INDICATIVE of the appropriateness of the setting for the first avocado field day recently held at Puente, was the address of the president of the Chamber of Commerce, who expressed pleasure at having so many "nuts" in the new walnut packing house, where the enthusiastic meeting was held.

Avocado growers, in fact, are noted for their optimism and enthusiasm; and the appellation, therefore, may be considered a sincere compliment.

Included in the supplies consumed by the avocado "nuts" was more than 40 gallons of ice cream. After dinner all drove to the groves of Messrs. Hart and Barber, at North Whittier Heights, to witness demonstrations. From a platform built around a tall seedling tree, the operators showed the visitors the latest practice in pruning and grafting.

Dr. Will R. Manning of Fillmore gave a demonstration of cleft grafting. A trip to Dr. Manning's grove to see the growth of his trees, on which he has used this method, would convince any one that it is highly successful.

He saws the limb squarely off and splits the stump with a meat cleaver. (The limb used for demonstration was about two and one-half inches in diameter.) The split is held open with a wedge until the scions are inserted. He inserted two scions, one on either side of the stump. Scions were about three or four inches long, trimmed to a wedge at one end, so as to fit into the split, with the cambium layer next to that of the stump. The scion had three or four buds. The stump was bound with budding cloth and covered with hot wax.

The following points are emphasized: The scion should be of hardwood; the grafting is best done in February and March; the wax should be applied hot, using a brush; and scion should be shaded (he used a newspaper); after the growth is well started, it must be supported to keep from breaking off before the wind.

Dr. Manning reports success in nearly every case, but he takes the

(Continued on Page 15)

# EDITORIAL DEPARTMENT

## Timely Topics among Farm Folk

### The Agricultural Census

THE 1920 census figures for California show an increase in the number of farms of 33.4 per cent. But there has been in the same 10-year period, it is revealed, a decrease in the average acreage per farm of 21.8 per cent!

This comparison tells an interesting and important story. It reveals what is taking place in this State—division of the large ranches into smaller acreage, more intensively cultivated.

If the size of our farms has decreased over 21 per cent in the past 10 years, what will take place during the next decade?

### What About Land Valuations?

ANOTHER crucial fact is set forth by the census returns. During the period from 1910 to 1920, there has been an increase in the value of all farm property of 112.5 per cent!

Yet in spite of the great increase in acreage and value, the cultivated area has decreased, nearly 300,000 acres, or 21.8 per cent.

In other words, the improved area has decreased almost in exact ratio to the average acreage per farm.

These figures, cold and uninteresting in themselves, nevertheless should be studied for their comparative values by every business farmer. They afford food for thought; and the highway to success is paved with study and careful planning.

The complete bulletin, containing a summary of all California agricultural statistics, may be had upon application to the Bureau of Census, Department of Commerce, Washington, D. C.

### The Price of Milk

MOST dairymen would be satisfied with assurance of a steady labor income, plus a fair return upon their investments.

In fact, this would be preferred to alternating periods of prosperity and depression.

Too frequently, however, the price of milk is regulated by distributor control, rather than the law of supply and demand.

Almost every indignant uprising among the consumers, in fact, fails to disclose any profiteering on the part of the cow-owners.

But expensive distribution is not the only factor in setting retail prices.

Investigators who point out the rapidly increasing cost of milk over a period of years do not take into account the causes beyond the dairyman's control.

He represents one class of manufacturers who have had very little control over cost of production.

The regulations under which the dairyman must operate grow more exacting year by year. City health officials have found it necessary to impose more and more restrictions.

No doubt these regulations are dictated by the public interest, but this is no reason why the dairyman should be expected to pay their cost.

The trend of events is indicated by the recent statement of Dr. Royal S. Copeland, Commissioner of Health for New York City, and a famous writer upon medical subjects. Dr. Copeland says:

"The civilized world is coming more and more to recognize the importance of a pure milk supply. The time will come when no community will permit the sale of milk except under a license and under the strictest sort of supervision.

"It is not enough to control the delivery wagons and the distribution. No system of milk control is sufficient unless it has charge of the milk from the cow all the way to the ultimate consumer."

### Advice to the Public-Spirited

THOSE who draw comparisons between present-day milk prices and those of ten years ago should consider the added cost imposed by the ever-tightening network of regulations with which the dairy business is surrounded.

And then they should figure out some plan by which distributors could be limited to reasonable profits and market values stabilized.

Nothing is gained by bulldozing the harassed dairyman.

If it were not for the more efficient methods devised for and by the farmers—such as the use of modern equipment, and testing to eliminate unprofitable cows, the price of milk, based on increasing costs of production, would be double the present figure.

### Do You Know Your Neighbors?

STRANGELY enough, with the advent of the automobile, better roads and the telephone, the good old-fashioned habit of visiting the neighbors became less instead of more prevalent in many rural communities.

Now, many farm families are "too busy," or prefer to spend their leisure hours motoring or attending the "movies" in town.

*"A Good Time Was Had by All"*

But nothing can take the place of those twilight visits upon the neighbors' porches; nothing is more important than to know, and have the respect of those who dwell near by.

The neighbor whom you have considered cool and indifferent may need only a word of encouragement to become a trustworthy friend. And the one whom you have suspected of snobbishness may be, in fact, the most lonely of all.

All over the world it is the same: The friendly hand finds another always stretched to meet it. And what is of more true worth than a friend?

"There is so much good in the worst of us; so much bad in the best of us, it scarcely behooves any of us to criticise the rest of us."

### Farm Names May Be Trade-Marked

THE United States Patent Office recently approved and published in the Patent Office Gazette a trade mark covering the name of the farm of an Iowa farmer. Ledru C. Willits, the farmer in whose name the trademark was issued, is a breeder of purebred hogs, cattle and sheep. The name of the farm as trademarked is "Hawkeye." So far as known, Mr. Willits is the first stockman, and probably the first farmer, to obtain a United States trademark for his farm.

There is nothing in the law to prevent it, but apparently no one thought of it before. If a farmer uses his farm name and trade mark as part of his selling operation in disposing of what he produces, the trade mark protects the owner of the farm in its use in interstate commerce.

California now has a statute providing for registration of farm names with the State authorities, but a trade mark, registered by the Government protects the use of the farm name outside of the State in which the farm is located. Here is a "tip" worthy of investigation. It comes from the U. S. Department of Agriculture.

### A Prophet-able Venture

WE ARE going to venture a prediction, risking the criticism that sometimes assails those who assume the role of a prophet.

Our prediction is this: The development of air transportation is going to do more than any other agency to erase entirely the rapidly fading line of demarkation between city and country. And its most marked effects will be felt within the next ten years.

The cover design of ORCHARD and FARM last month was not altogether visionary, for animals have been consigned and successfully shipped by "air express."

Furthermore, a number of farmers and stockmen now own and operate their own planes. In sections of the Southwest, where animals graze upon the open range, airplanes have been used with great success to locate scattered bands and herds.

As another example of the field of usefulness for the airplane, a farmer, unable to secure a repair part for a threshing machine, and with an expensive crew on his hands, flew to a town 100 miles away, secured the necessary repairs and had the outfit at work again in less than three hours.

We may give free rein to our fancy in visualizing the future of air transportation as applied to agriculture. The possibilities are limited only by the imagination.

### The Sales Tax and the Farmer

NO DOUBT the American Farm Bureau Federation believes it has good and sufficient reasons for opposing the adoption of the sales tax as the ultimate solution of our National tax problem.

And Orchard and Farm is in accord with the Federation in many of its projects and [illegible]. But the very simplicity of the system now being advocated would seem to recommend it to all [illegible] farmers, while every argument so far advanced against the plan has been met with a constructive, really logical and straightforward [illegible].

Don't condemn the sales tax without investigating its possibilities. Orchard and Farm will have more to say about this important projected reform. And perhaps eventually the American Farm Bureau Federation will come to believe, as have thousands of bodies and hundreds of thousands of individuals, that it is the most advanced and satisfactory tax plan ever devised.

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CONCISE CONTRIBUTIONS
On practical agricultural subjects are invited. [illegible] manuscript will be promptly returned if [illegible]. Preference is given to accounts of actual experiences, the how, when, where, who and why.

## Giant Rye Grass

MANY of the forage crops which are "boomed" by interested growers require either rich soil, warm, climate or plenty of moisture—or all three of these favorable conditions.

Giant rye grass needs neither, thriving on poor, rocky soil in a cold, semi-desert climate. No dealer ever has pushed it, and probably none ever will, because of the difficulty of securing a sufficient supply of seed. The seed is very small and light, something like blue grass seed, and sells for about $1 a pound, this quantity being sufficient to cover a large area.

Giant rye grass should not be confused with wild rye or Italian rye grass, being very different from either. The writer saw it growing in the extreme northeastern corner of California at an elevation of 4700 feet, where zero temperatures are not uncommon and where the annual precipitation is only 14 inches. Some years less than half that much moisture falls. At the time of my visit—September, 1919, no rain had fallen since the middle of April, yet this plant was observed growing on dry land to a height of five feet.

In spots where there is plenty of moisture the seed stalks grow as high as a man on horseback. Giant rye grass makes coarse but nutritious hay and is relished by both cattle and horses.

Miller & Lux, who are perhaps the largest landowners and stockmen in the United States, are sowing all the seed they can obtain of this valuable plant on their dry, cold pasture lands.

Indians sometimes can be employed on very reasonable terms to gather the seed by hand. There are some large meadows between Reno and the Oregon line. The plant is a deep rooted perennial, like alfalfa, and requires about three years to become fully established.—O. H. Barnhill.

## Cleaning a Ditch

HAVING an irrigation ditch that was too steep for ordinary mowing, rather than spend the necessary time to cut the grass with a scythe, I solved the problem by driving the mower while another man walked along holding up the sickle by means of the swath-stick. He was able to keep the sickle from digging into the bank and could raise it over floodgates and other obstructions without stopping. In this way the work was done in one-tenth the time.—F. A. Wilkendorf, Woodland, Calif. (H).

## Shine Up the Car

TO ONE part medium oil add nearly two parts coal oil to make an excellent polish for the car. Remove all dust and dirt; then apply with a cloth or chamois. When dry, rub down and polish.—Mrs. L. Moskowite, Sonoma, Cal. (H)

## SOURCES of INFORMATION
*"The Fruit of the Tree of Knowledge"*

THE following new Government bulletins now are available and will be sent free upon request. Address Division of Publications, U. S. Dept. of Agriculture, Washington, D. C. Order by number.

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Tuberculosis of Fowls. .....1200
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If you have tender feet, or want a shoe for wear where the exposure to wet weather is not so great, wear WOLVERINE COMFORT SHOE. Like a blessing on tired feet.

Here it is! The work shoe that wears, and wears, and wears!

It is made of horsehide, through and through. Soles, as well as uppers, all made of the toughest, best wearing leather on earth, tanned in our own tannery to the softness and flexibility of buckskin by an exclusive, secret process.

Horsehide is the closest fibred leather. It is the leather used in making league baseballs because it is the only leather that will stand the hard pounding.

Horsehide hasn't been used before because it could not be tanned soft. We tan it so that it is soft and flexible as a buckskin glove. But how it wears!

We use only the best wearing parts of the horse's hide. Only the "butts" are made into WOLVERINES. And every hide is double tanned in our own tanneries by our secret process, which increases their wearing ability while making the leather soft and flexible as kid.

We call this wonderful work shoe the WOLVERINE 1000 MILE SHOE. We know it will give you a thousand miles of wear. We don't know how much more mileage it will give you. But we are going to find out.

Mud, snow, ice, dust—all the destructive forces of nature—these are the things your shoes have to contend with. To win against these elements your shoes must be of the best wear-resisting leather. This is horsehide. They must be strongly made. WOLVERINE 1000 MILE SHOES are doubly strong where strain and wear are greatest. The uppers, usually of light leather, are thick and heavy here, yet they are soft and flexible, easy on the feet.

Your dealer has the WOLVERINE 1000 MILE SHOE. Be sure and ask for it. It comes in several models and weights. Heaviest weight for fall and winter, lighter weights for spring and summer. Try a pair. You'll never want to wear any other kind of a work shoe. This we *guarantee*.

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# "BOB" JONES' CORNER

## *Little Stories of Farming*

By ROBERT E. JONES—

Contributing Editor for Central and Northern California

**Re-establishing Confidence**—The recent policy adopted by State Real Estate Commissioner R. L. Riley is of great interest to all of those who wish to see California farm lands settled by satisfied colonists. Under the new real estate commissioner law, Riley is investigating closely all land projects and either approving or disapproving of their claims and advertising. His office has become a medium through which the prospective settler in California may be assured that he is purchasing land that is really what is claimed for it. In the past California has suffered greatly because of unscrupulous land promoters who used the California lure to make money regardless of the fate of the settler. Under Riley's policy, California now has a means of re-establishing itself in the confidence of the colonist from the East. As rapidly as he can do his work Riley is inspecting all land projects and classifying them. Those which gain his approval may carry a statement to that effect on all of their advertising matter.

**The Phone Farmer**—They tell a story of Phil Baier of Visalia, one of the fastest-traveling, most imaginative and practical fruit farmers in the Great West, which is worth repeating. Baier is decidedly a "go-getter" who believes in giving personal attention to a job. In the rush of the fruit season Visalia is a Mecca for fruit buyers, shippers and farmers. They sit out on the street in the summer evenings to catch the vagrant breeze and swap yarns. One farmer, a notoriously lazy man, was talking. He had been dubbed the "Telephone Farmer," because he spent most of his time in town and directed farm operations over the phone.

"I'm having a lot of trouble with squirrels eating up my grain," he complained.

"I'll tell you how to fix them," volunteered Baier.

The man's face brightened. "How?" he asked.

"Telephone them to get off the ranch!" snapped Baier.

**Learning From California**—California's progressive colonization policy is a subject of constant study by men from all parts of the world. This policy, introduced by Dr. Elwood Mead, who is in the Division of Rural Institutions at the College of Agriculture, and adapted by the State of California at Durham and Delhi, is rapidly spreading to private colonization companies. Jesse M. Jones, General Development Agent of the Seaboard Airline, with headquarters in Norfolk, Virginia, spent two weeks in California during July familiarizing himself with the California plan. He visited with Dr. Mead and also saw the Durham project near Chico and visited Sutter Basin and the Holland District near Sacramento. Jones stated while in California that there are large bodies of undeveloped land along his railroad. Efforts will be made to colonize this land along the lines now followed in California. Jones said he saw evidence all over the United States of the influence of the California plan.

**The Mongrel Tractor**—Arnold Waybur, in charge of the farming organization of the Sutter Basin Company in the Sacramento Valley, is well known for his quick wit. In this respect he has some resemblance to the famous Britisher, Gilbert Chesterton, a world known master at repartee. Recently a salesman for a "mongrel" tractor, which the Sutter Basin Company in a moment of indiscretion had purchased, approached Waybur in the hope of getting a testimonial for this machine. He was a very assuming type of a salesman and he approached the farm superintendent with an air of confidence, asking:

"I understand you have one of our tractors. How do you like it?"

Waybur calmly measured his man and replied, "A plumber and a tinsmith took a half day off and made the damn thing."

**Diversified Specialists**—Here is an interesting paragraph in a letter from Prof. Gordon H. True, written from Madison, Wis., where he has been spending a year's leave of absence. True recently returned to his post at Davis. The letter was in reply to a comment of mine on the fact that California had advanced in the last year from sixteenth to fourth place in value of agricultural products, and I don't think Professor True will object to his comment being given general circulation. "Your statement with reference to the advance of California from sixteenth to fourth place among the states on the basis of value of farm products is interesting. My guess would be that the reason you give is not the whole reason. Do you not think that the high level of prices maintained by co-operative marketing has something to do with it? Diversity of products within a state is fine but the ideal has not been reached until diversification on the individual ranches is the rule. That is the strong point in Wisconsin's agriculture and explains why Wisconsin is more prosperous than Iowa with its richer soil." In other words, while California farmers may continue to be specialists, they should also be diversified specialists. It is all right to grow California specialties, but the farm should have several of these, so as not to carry all the eggs in one basket.

**As to Inspiration**—Any farmer who has trod the rocky road to "Making Good" will appreciate the truth of the remark that Thomas Edison made when a woman, introduced to the great inventor, began to exclaim at the "marvelous inspiration" which she opined was responsible for his inventions.

"Yes," said Edison, with a whimsical smile, "one per cent inspiration, 99 per cent perspiration."

**Filcher Suggested**—Roy M. Filcher of Corcoran, who was first president of the California Farm Bureau Marketing Association, is being urged by many farmers as a member of the State committee, to investigate the proposed plan of segregating the California College of Agriculture from the University of California and establish the farm college at Davis. Filcher is a graduate of the College of Agriculture and has made a creditable record as a farmer, not only as a producer but also as a student and practitioner of good marketing methods. His success in the California Farm Bureau Marketing Association in beating Chicago prices on hogs through several seasons has attracted nation-wide attention.

THE "GREEN" HAND

The Boss—"I thought you were [illegible] way over in the south field! What's the idea of bringing that tractor up here at this hour?"

His Nibs—"Why, I ran out of [illegible] oil, so I drove her up to get some [illegible]."

### RIME OF THE PLOWMAN

IT'S some folks' joy to hunt and fish,
And trap the lakes and streams,
While some seek recreation
Just in dreaming idle dreams;
Some men are active all the time—
And some when pleasure calls,
Jest polish off the top fence rails
With the seats of their overalls;
But if it's me you're asking,
What pleasures most divert,
I like to hear the harness creak,
And smell the blessed dirt.

I LIKE to trudge the furrows
With the lines around my back,
With the black-birds all a-scrambling
For the bugs along the track.
I like it in the morning
When the breeze is brisk and cool,
And the kids with shining dinner pails,
Go piking off to school.
I kinda like to feel the wind
A-puffing out my shirt,
And hear the trace-chains jingle—
And smell the blessed dirt.

I LIKE to hold the handles
Where the hard-head rocks abound,
(There'd be no fun in plowin'
If it wa'n't for stony ground.)
I like to hold 'em steady,
With a grip that's middlin' strong,
To keep my ribs from gettin' sore,
From pounding all day long.
The rocks don't catch me nappin',
For my nerves is all alert;
A feller can't get sleepy—
And smell the blessed dirt.

I LIKE to see my horses sweat,
And sweat myself as well;
(There ain't no harm to horse or man/
So far as I can tell.)
I like to stop and rest my teams,
And slacken up the reins,
And loosen up the belly-bands,
And straighten out their manes,
And pull their collars forward,
If I think their shoulders hurt;
And sprawl myself upon the ground
And smell the blessed dirt.

AND when the bell reminds me,
That the hour's gettin' late,
I like to drop the traces,
And drive on through the gate.
I like to pull their bridles off,
And really I don't think,
There's a thing that I like better
Than to see my horses drink.
I like to hear 'em puff and blow,
And see the water squirt,
After working all the morning,
Plowin' up the blessed dirt.

THE city has no charms for me,
That anyways compares,
With the joy I get in plowin'
With a spanking team of mares.
And when the day is over,
And I'm doing up the chores,
I thank the Lord that lets me work
In His big out-of-doors.
The farmer's is the life for me,
And freely I assert,
The grandest thing about it is,
To smell God's blessed dirt.
—R. S. Clark, University of Missouri.

## Grafting Avocados

(Continued from Page 11)

added precaution of leaving some small branches on the stump to carry the sap, and also whitewashes the trunk to protect it from sunburn.

S. W. Funk of Charter Oak gave a demonstration of side grafting. He agrees with Dr. Manning as to the selection of scions and general care of the tree and reports success at almost any time of the year.

He inserts the scion in the side of the limb or trunk, wraps with muslin and covers with hot asphalt. The asphalt is prepared by adding a small quantity of crude oil and boiling two or three hours. He does not cut off the limb at the time of inserting the graft, but girdles it a few inches below the insertion. He emphasizes the need of leaving the cloth and wax on the stump. If they are removed too soon, the new growth breaks off.

Grafting almost entirely has superseded the budding process in working over large trees, and is quite popular in working over small trees. A smaller percentage of failures results from grafting and a much more rapid growth is secured.

The demonstrations were concluded when Carter Barrett of Puente gave a demonstration in pruning. Many were agreeably surprised to know the extent to which a tree could be shaped.


# Plant an Orchard

*Our foothill soil and location produces a tree that for hardiness, good roots, and freedom from disease cannot be duplicated by any other section*

**Growing fruit is the best paying business in California.**

The acid test of any business is not what it will do under favorable conditions but what it will do under adverse conditions.

Even under this year's depreciated values, the orchardist with a block of **Prunes, Bartlett Pears, Apricots, Cherries, Raisins, Shipping Grapes, Clingstone Peaches, Drying Peaches, Fall Pears, Almonds, Shipping Peaches, Shipping Plums, Canning Plums,** and **Figs** will make more money than the grower of grain, hay, alfalfa, beans, rice, or the dairyman.

The trees you plant now will, five and six years hence, assure your share in the profits inherent to the California fruit grower.

The supply of trees in the State available for planting is not over 60 per cent of the trees budded last fall. **This will result in a shortage of some of the best standard varieties.**

**We offer for your planting the most complete assortment of commercial fruit varieties.**

Our trees are the best that care in propagation and efficient workmanship can produce.

Our catalogue, full of accurate practical horticultural information and suggestions, and our thirty years' experience in fruit growing and fruit marketing, are at your service for the asking.

Submit us a list of your tree wants for quotation while the varieties you desire are still available in our foothill grown stock.

Write me today.

J. E. Bergtholdt
*Sec. and Mgr.*

*Member of Bud Selection Association of California*

**SILVA-BERGTHOLDT CO.**
**NEWCASTLE, CALIF.**


## Agriculture in Alaska—The Reindeer Industry

(Continued from Page 5)

for their rapid increase is early fecundity, a female deer usually reproducing when but one year old. Also, the young deer are practically immune from cold. This is fortunate, as in interior Alaska where they do remarkably well, the temperature reaches 60 degrees below zero.

### AN ENORMOUS FIELD

In view of the fact that Alaska embraces 375,000,000 acres of land, of which fully one-half is suitable for and adapted to the reindeer industry, and that it has been clearly demonstrated that reindeer do fully as well in Alaska as in Siberia, it does not require other than a little figuring to show that Alaska is, or could be placed in, position to supply the entire United States with meat in the not distant future. Twenty-five cow deer and two males constitute a properly proportioned herd for a start in the reindeer industry.

"A million reindeer, grown by natives and white herders, soon will convert Alaska into a vast, meat-producing territory," said Edward Nelson, chief of the Biological Survey, following a recent visit to the Territory. The same department is making an investigation of the possibilities for sheep raising upon the Aleutian Islands. (Sheep are said to be thriving on the range near Kodiak and in other parts of the Territory.—Ed.)

Another livestock experiment is the crossing of the Yak with Galloway cattle, for the purpose of establishing a hardy breed for Alaska. This project being carried on at the Fairbanks Experiment Farm, is being watched with the greatest interest. At Kodiak, the Galloway and Holstein have been crossed, according to E. Hansen, secretary of the Commercial Club, and although the calves are not old enough to determine its ultimate success, it is hoped that this experiment will result in the establishment of a hardy

(Continued on Page 34)


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And note this!- There's nothing flashy about the Camel package. No extra wrappings that do not improve the smoke. Not a cent of needless expense that must come out of the quality of the tobacco.

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# Citrus Topics in Brief

By Robert W. Hodgson

## How Much Cultivation?

CONFRONTED this season with the basic necessity of reducing cultural costs, citrus growers have been forced to analyze their systems of orchard management with a view to eliminating all non-essential expense.

Robert W. Hodgson

Of special interest, therefore, is the opinion of Dr. I. G. MacBeth, as expressed at the recent Citrus Institute. He surprised many hearers with the statement that many orchards are overcultivated. He added that growers might well consider the elimination of one or two of the cultivations now generally practiced between irrigations.

Dr. MacBeth went on to say his observation had convinced him that in all save the most refractory of soils, two cultivations between irrigations are ample.

### OLD THEORY UPSET

All of which raises the question of the purpose and function of this important operation—a question which even the novice is ready to answer with the words, "Water conservation." It was the classic experiments of Fortler and others of the Bureau of Irrigation investigations, performed at Davis years ago, which so firmly established water conservation as the main and primary purpose of cultivation, a conclusion accepted in agricultural circles all around the world and now taught everywhere in the standard textbooks.

### CULTIVATION AND MOISTURE

Surprising, indeed, it is to learn now that soil scientists practically agree cultivation does not conserve the soil moisture supply. And still it is not so surprising to those who remember the discoveries of recent years in which it has been shown that the primary force influencing the movement of water in soils is gravity, and that capillarity functions little or none except where a free water table is concerned.

If water, applied to agricultural soils, follows the pull of gravity until the force of adhesion to the soil moss balances the attraction of gravity, and does not rise by so-called capillarity, then quite naturally cultivation, no matter how thorough or desultory, can have little effect upon moisture loss or conservation.

### STILL IN VOGUE

But this does not mean the practice of cultivation is to be abandoned. When the water in the soil is exhausted, more must be supplied. And excepting in the lightest of sands, the soil unless properly tilled, will not absorb water satisfactorily. Furthermore, weeds must be kept down, and aeration supplied. Cultivation must and does have its place.

But if water is not saved by cultivation; if the physical condition is conducive to water absorption, and if weeds are under control, why cultivate? When cultivation simply raises a miniature dust storm, no object is attained and the effort is wasted. There is opportunity for much thought upon Dr. MacBeth's statement.

## Fumigation Season Under Way

BEGINNING August 1 the fumigation season in most districts was well under way. Other things being equal, it is the early fumigation that gets the scale. However, haste sometimes makes waste, and it is a good idea to get in touch with the horticultural inspector and have him report on your orchard. Incidentally, he is a good man for you to know. Sometimes a little consultation with him may save you considerable money. Therefore, have him inspect the orchard and make his recommendations, and then follow his advice.

### FRIENDLY CO-OPERATION PAYS

It is a good idea, too, to make the stay of the fumigation crew at your place as pleasant as possible. It is hard and dirty work (as well as dangerous) to pull the tents over the trees and "shoot" them. And a little effort at co-operation on your part frequently will pay good returns. The coffee at midnight, together with attention to irrigation and cultivation, have been known to aid materially in effecting a good kill of scale.

## Citrus Root Growth

RECENT investigations at the Citrus Experiment Station at Riverside have brought out the most interesting and valuable facts that citrus root growth takes place principally, in fact exclusively, between the latter part of April and the middle of November. Roots primed every month in the year, and kept under observation showed little or no regeneration until about the 1st of May, from which time until the last of October regeneration began almost immediately and growth continued throughout the remainder of the season.

### RELATION OF ROOTS TO TOP

A pronounced interdependence of root and top growth was found to exist, the roots remaining inactive until top growth had begun, and ceasing their development shortly after cessation of shoot growth.

It now becomes clear why it is that the month of May gives the best results in the planting of citrus trees. Root regeneration and top growth commence at once, and the tree receives little or no setback. Also it becomes clear why August and September are especially desirable for furrow manuring.

The feeding roots, cut in making the furrows, regenerate immediately and establish a new, vigorous system ready to begin functioning the moment spring growth commences. The same condition occurs where early fall plowing is practiced and probably is an important reason why such good results have been found to follow fall plowing.

### RELATION OF PLOWING

In this discovery also is found the probable explanation of the fact that late spring plowing, especially deep plowing, is inimical to a good crop of fruit, while an early spring plowing is not. The late plowing shears off the new, tender feeding roots at the very time they are most needed, following the early plowing on the other hand, there is time for the growth of a new system. Here is another illustration of the importance of resource work, the practical applications of which frequently are not evident to the uninformed.

### READY FOR COVER CROP

Now is the time to get ready for the cover crop; fifteen years of experience have demonstrated conclusively that it is the early planted cover crop which grows the tonnage in time for safe spring plowing. Therefore order the seed and give the orchard an extra good soaking prior to fitting it for planting.

To date nothing better has been found for general conditions than Melilotus indica, although for the rocky, gravelly soils, vetch seems to be better adapted. Some prefer vetch seed likely will be on the market, and this crop undoubtedly will be given a better trial than ever before. Care in preparing the seed bed, with special attention to irrigation until the root system is well established, will pay dividends in heavy tonnage.

# Weakness of Long Pruning System

Some evidence recently has been observed in apricot orchards where pruning early in the life of the trees has become evident.

The branches, weighted down by fruit or affected by their length and heavy foliage, have split in the crotches of the tree.

The practice of spacing the main scaffold branches so that no two of them start at the same height has been recommended consistently by writers on pruning for many years. Difficulty has been experienced by most growers, however, in bringing out the development of branches properly spaced, and while this difficulty cannot be entirely overcome, in most cases careful summer pruning in May or June during the first year will give satisfactory results.

### OBSERVATIONS OF APRICOTS

The particular observations recorded here with were made in two four-year-old apricot orchards. In these groves the trees had been headed in such a way that the main branches formed a "whorl" near the point where the young tree was cut off when set out. This condition always means a mechanically weak crotch, which may not withstand the weight of a heavy load of fruit. One of the orchards carried a fair load of fruit the past season, the other had practically none. The worst cases of broken trees were observed where there was not enough fruit to add materially to the weight of the branches, breakage being due to long growth resulting in a top-heavy condition.

### FORMATION OF FRAMEWORK

A second error was made in the pruning of these trees; viz., too many branches were left to form the framework. It is apparent that a dozen main branches growing in the framework of the tree will not possess the individual strength of six main branches.

As a result of having too many main branches the tree makes an insufficient "diameter growth," and develops long, slender whips, which, with their great abundance of foliage, assume more nearly a horizontal than a vertical position.

The leverage is so great that breakage in the crowded crotches is the inevitable result. Some trees in the orchards mentioned have been ruined completely. In one orchard the breakage was so severe it was suggested that some of the lower branches have their tips cut away in order to lighten the weight, the idea being to save as much of the foliage as possible by this method rather than removing entire branches. Some of these, however, will be removed entirely during the next dormant pruning.

### HOW TO MAKE REPAIRS

Broken trunks may be saved immediately after such breakage occurs in the orchard. It is possible, as a rule, to raise the fallen branch to its original position, firmly holding it by means of heavy bolts, which should be passed entirely through the trunk when possible. (Lightening of the broken branch by heavy pruning is desirable before the bolts are inserted.)

In orchards where such breakage has occurred the pruning work during the coming dormant season should be done with the idea of developing not more than six strong, upright branches in the framework.

### WHAT IS LONG PRUNING?

Long pruning should not be light pruning, and some growers are making the mistake of leaving too many main branches. Strong uprights are essential, and when properly developed they will hold up heavy loads in the short lateral branches which they will grow. Then little or no propping will be necessary.—G. P. W.

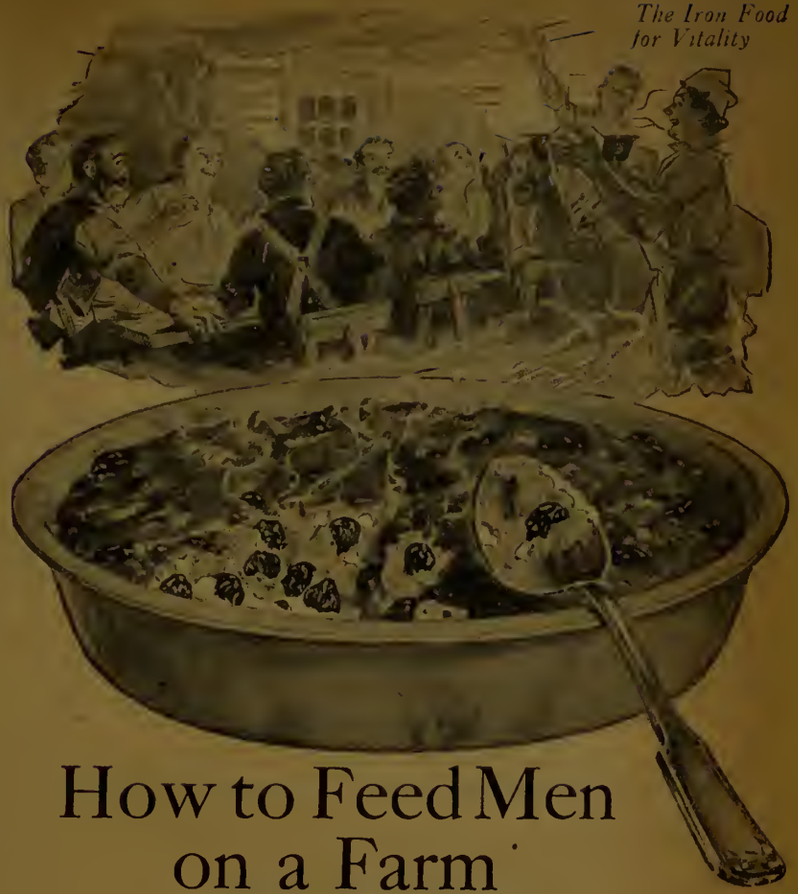
*Straw as an Orchard Humus-maker*

*WHERE cover crops cannot be grown for plowing under while green, the practice of spreading straw, especially bean straw, over the surface of the ground, and plowing it under is to be recommended.*

*Organic matter in the soil, however it may be secured, is a necessity, and in our arid sections, where orcharding is one of the big industries, there always is a scarcity of humus, the product of plant decay.*

*Heavy soils which cement badly, lose moisture quickly and refuse to take moisture readily when irrigation water is applied, also are greatly improved by the plowing under of bean straw in the early spring before the irrigation season ceases.*

*The accompanying photograph was taken in a San Bernardino County orchard, where some of the growers have been using straw successfully to improve the physical condition of the soil.—G. P. W.*

*The Iron Food for Vitality*

# How to Feed Men on a Farm

## —*what a cook found out*

### Sun-Maid Bread Pudding

To a pint of bread crumbs add a well beaten egg, a cupful of milk, 1- cupful of molasses and 1 cupful of Sun-Maid Seeded Raisins cut in halves. Mix well together, then stir in ½ teaspoon each of cinnamon, salt and soda. Turn into a buttered pudding boiler and cook 2 hours. Serve with the following sauce: Beat to a cream ½ cupful of butter and gradually beat into it a cupful of sugar. Add any preferred flavoring. When it is smooth and creamy pile it roughly on a pretty dish, place it where it will get cold, and before serving grate over it a little nutmeg.

A COOK had a problem in left-over bread (as you have, no doubt). This is how he solved it.

He made *raisin*-bread pudding—not plain *bread* pudding, for his men had frowned on that. The raisins made the dish *new* with new appetite appeal. The men ate all and asked for more. Next day they asked for it again. Soon he had to make it *twice a week*. He had to bake bread *extra* for that pudding!

All the men did *better work*. It became less trouble to get help. The outfit was soon *famous* for its food. Men *wanted* to work there. There was *more* efficiency, *greater* output, *less* expense.

All started by a simple recipe for *raisin*-bread pudding!

### Try It With Your Men

Try with *your* men. Note the recipe for the pudding printed here. See how quickly you use up left-over bread. Serve it twice a week *beginning now*. See how many ask for second helpings. Learn what this delicious dish can save you in time, trouble and cost.

Raisins add *nutrition* as well as luscious *flavor*—1560 calories of energizing nutriment per pound. So they're food for men who *work* hard—food that *satisfies*.

"Raisins are cheaper by 30% than formerly—See that you get plenty in your foods."

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Please send me copy of your free book, "Sun-Maid Recipes."

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Southern California no longer needs to experiment with unproved sprays. Fumigation that doesn't get results is denied further credit. Success in combating citricola, black scale and red spiders is best assured by spraying with Balfour, Guthrie & Company materials. Field tests have proved this. Let us prove it to YOU.

We will work shoulder to shoulder with Southern California orchardists. We will tackle YOUR problems. Our experts will demonstrate that the right way for you to secure a full harvest of fancy fruit is by spraying now with.

B. T. S. 15 pounds
TRIUMPH 1½ to 2½ gallons
GLUE 1 pound
(For citricola and black scale)

Per
200 Gallon
Tank

B. T. S. 10 to 12 pounds
TRIUMPH 1 gallon
GLUE 1 pound
(For red spiders)

(Patented Formulas)

Years of constant research and actual field work in California have proved the unchallenged merit of these sprays. They assure you best results at half the cost of fumigation. You can depend upon more fancy fruit to sell at highest prices.

Write or call at our headquarters in the H. W. Hellman Building, Los Angeles. Frank B. Herbert, assistant entomologist and his aides, will examine your grove free of charge. They will tell you the right spray to use and how to use it. To get best results, spray today.

*Send at once for your FREE copy of a new bulletin on citrus spraying by our expert entomologist, Paul R. Jones.*

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# San Fernando Valley Fair

(Continued from Page 6)

prominent and active property owners and boosters in the valley.

BRILLIANT HORSE SHOW

The Night Horse Show promises to be the outstanding feature. It will be held in what is described as the largest arena in the United States, and will include saddle horses, saddle ponies, hunters and heavy and light harness horses.

A special matinee will be given at 2:00 P. M., Wednesday the 24th, for the children. One unique feature of the Horse Show, which is being directed by Hamilton ("Horse") Bassett, is a free lottery in which a Shetland pony, cart and harness will be awarded to the fortunate boy or girl holding the winning ticket.

*Every child attending the San Fernando Fair will receive a number permitting participation in the drawing for the pony.*

The Horse Show has been designated a "$1000 a Night" event. It is said that scores of famous animals will be seen in action, with every rider, ringmaster and groom especially attired in striking costume.

The Horse Show will be enlivened by the presence of several movie stars, including Gloria Swanson, Ethel Clayton, Pauline Fredericks and Douglas Fairbanks.

The awards are of such substantial nature as to attract leading breeders and exhibitors from all over the West.

Of special interest is the announcement that a working field demonstration of tractors will be held, this being the first event of its kind to be given in Southern California for two years. It is said that a number of new tractors and models never before shown will take part in this demonstration.

The working demonstration will include also many types of machinery operated with tractors, including combined harvesters, grain and bean threshers, power cultivators, subsoilers, automatic hay loaders, plows and harrows.

J. A. O'Neil, well known as manager of former Los Angeles tractor shows, will have charge of the power farming exhibit, and promises new and novel features.

One of the most important features of the Fair will be the women's department, under the management of Mrs. Harry Huston of San Fernando, who is planning comprehensive displays of plants, flowers, culinary products and needlework.

In addition, Mrs. Huston will stage one of the largest Baby Shows ever held in Southern California, for which, it is said, more than 800 entries already have been received. Some idea of the importance of this section of the Fair is gained from the fact that a tent, 60 by 100 feet, will be used for the art exhibit alone.

The ultimate success of the show, however, will be credited largely to C. R. Elkins of San Fernando, general director, to whose vision is due the extensive scope of the Fair. In his work he has added the able assistance of such enthusiasts as M. G. Dial, vice president of the Fair Association.

In connection with the fair will be held the official American Poultry Association Show for Southern California, which is attracting poultry breeders from all Southern counties.

"A riot of fun" is the term used to describe the "Midway," where merry crowds will patronize side shows, amusement devices, the dance pavilion (under the auspices of the American Legion), and wonderful band concerts.

The Pacific Electric Railway will run extra trains, which will remain until the close of the Horse Show. Special trains will run from the Sacramento State Fair to convey stock and exhibits to San Fernando.

Truly representative of the entire San Fernando Valley, the show is backed by the Chambers of Commerce of ten towns. This fact, with the official recommendation of the Los Angeles County Supervisors, gives promise of a truly epochal event, representing an expenditure of nearly $80,000.

The spirit of the event is exemplified in the title given it by the management: "A New Fashioned Old County Fair."

## Los Angeles Flower Show

NURSERYMEN, florists and flower lovers throughout the entire West are much interested in the first big floral and horticultural exhibition ever given in this State, the California Flower Show and Horticultural Exhibition, planned for Exposition Park October 20 to 26, under direction of the California Association of Nurserymen.

Plans have been under way for several months, but it was not until F. M. Renfro, designer of the National Orange Show's wonderful expositions, arrived in Los Angeles that actual consummation of the plans became a reality. Mr. Renfro has outlined to the executive committee, headed by Roy F. Wilcox, president of the Nurserymen, the character of the exposition, its departments, its decorative and illuminative features and its other many attractions.

IN THREE DIVISIONS

The show is to comprise three main departments; the first a seven-acre sunken garden, in the arrangement of which nurserymen are co-operating. This will become a permanent attraction at Exposition Park and will be a gift of the nurserymen to the city and county of Los Angeles. It will be in full bloom during the show. A mammoth fountain now is being constructed in the center of this garden as one of its features.

The second department will be devoted to a cut flower exhibition, while a third, under a mammoth canvas, will include commercial exhibits, nurserymen's supplies, plants, etc.

During the first three days of the exposition nurserymen from all over California are expected to gather in convention, discussing various phases of their business. Educational as well as entertainment features are provided to make this show the peer of any of its kind ever held in this State and of National importance as well.

## California National Livestock Show

UNIQUE in many respects is the plan of the California National Live Stock Show, slated for October 22 to 30; this exhibition will be held on Market street, between Eleventh and Twelfth streets in the city of San Francisco.

Because the show is the product of an insistent demand for a breeders' exhibit, it is believed that it will become an increasingly important annual institution.

Great stress is laid by Manager J. R. Thomas and his associates upon the possibilities for overseas trade. As one of the world's greatest seaports, San Francisco, it is pointed out, has become the mecca for live stock buyers from South America, the Hawaiian Islands and the Orient. It is believed that the show will stimulate greatly such trade.

TO MEET CHANGED CONDITIONS

Mr. Thomas points out also that there must be held a great show that will offer a medium for the sale and purchase of breeding stock among the large number of small farmers, who in future will produce the country's meat supply.

As the great stock ranges are becoming a thing of the past, the meat industry is entering upon a new phase of which such a show as the San Francisco event appears to be a necessary by-product.

In order to assure its financial success the Stock Show was so located as to compete with other city attractions for gate receipts. Four acres of ground will be devoted to the exhibit, which will be housed under 330,000 square feet of canvas.

SPACE FOR MANY ENTRIES

This furnishes space for 500 head of cattle, 250 head of horses, 250 head of sheep and goats and 2000 poultry, pigeons and rabbits. Swine will be excluded because of a city ordinance. The Night Horse Show promises to be a brilliant society event.

Stockmen from every county and from adjoining states are laying their plans to be in San Francisco October 22-30.

## State Fair Tractor Show

OF SPECIAL interest in the State Fair tractor division will be the Holt Manufacturing Company's exhibits, which will include the new "baby" size (T-35), a machine weighing approximately 4000 pounds, that is only four feet wide and is adapted to a great variety of work, including cultivation in closely planted orchards and vineyards.

In contrast will be the giant caterpillar "75," involving several improvements and changes, which is said to remain the most powerful tractor built. The complete Holt exhibit will include the 10-ton, 5-ton, Caterpillar "45" and a full line of Caterpillar tractor implements and harvesters.

The Samson Tractor Company of California will be represented with its new, refined model, recently offered at a startling reduction in price, for the purpose, as explained by the manufacturers, of meeting changing conditions. The same company will show a general purpose truck adapted to farm requirements.

One of the most interesting machines shown will be the Toro cultivator, which is quickly convertible from a general purpose small tractor into an efficient power cultivator, and which has made a sensation wherever shown. The Cushman Motor Works of Stockton is the exhibitor.

The pump exhibits will be especially complete and will include a big display by the Bean Spray Pump Company, this exhibit including both irrigation and spraying equipment.

Following is list (to date of going to press) of tractor, implement and machinery exhibitors at the State Fair, furnished by W. F. Freeman, president and manager, California Tractor and Implement Association:

**Advance Rumley Co.**—Tractors and Threshers.
**Averill Company**—Tractors and Harvesters.
**Avery Company**—Tractors and Threshers.
**Beacon, Edward R.**—Road Machinery.
**Best, C. L., Company**—30 and 50-H.P. Track-layer Tractors.
**Bowman Implement Company**—Plows and Implements.
**Case, J. I., Plow Works**—Wallis Tractors.
**Case, J. I., T. M. Company**—Tractors and Implements.
**Carter, H. N., Motor Co.**—Allis-Chalmers and Beeman Garden Tractors.
**Cleveland Tractor Company**—Cletrac Tractors.
**Cushman Motor Works, Stockton, Cal.**—Toro Cultivators and Cushman Gas Engines.
**Deere, John, Plow Company**—Power Farming Implements.
**Field Force Pump Company**—Pumps and Sprays.
**Hardie Company**—Sprayers.
**Hennense Tractor Company**—Track-laying Tractors.
**Holt Manufacturing Co.**—75-H.P. and 5 and 10-Ton Caterpillar Tractors.
**International Harvester Company**—Complete line of Implements and Tractors.
**Killefer Manufacturing Company**—Tractor Drawn Tools.
**Kroyer Manufacturing Company**—Wizard 4-Pull tractors.
**Lytle and Patterson**—Land Levelers.
**Mitchel-Pate Company**—All Work Tractors.
**Oliver Plow Works**—Plows and Implements.
**Pacific Power Implement Company**—"All in One" Tractors.
**Pacific Implement Company**—Farm Implements.
**Renstrom, F. O., Company**—Twin City Tractors.
**Standard Oil Company**—Oils and Greases.
**Union Oil Company**—Oils and Greases.
**Velvoline Oil Company**—Oils and Greases.
**Wallis Tractor Company**—Ball Tread Tractors.

**THRESHER AND HARVESTER TENT**

**Averill Company.**
**Avery Company.**
**Case, J. I., T. M. Company.**
**Harris Manufacturing Company.**
**Hoos Manufacturing Company.**
**Minor Monarch Hay Press.**
**Weiser Mfg. Company**—Land Levelers.

**PUMP AND MISCELLANEOUS TENT**

**Bean Spray Pump Company.**
**Jackson Iron Works.**
**Company**—Pumps and Windmills.
**Commercial Engine Company**—Gas Engines.
**Smith & Cochran**—Delco Electric Light Plants.
**Smith & Terry**—Redwood Pipe.
**Pump Company.**
**J. J.**—Concrete Pipe.
**Pump and Supply Company.**
**Pump and Sales Company.**
**Wheel Company.**
**Pump Company.**
**Harrows**—Levelers, Harrows and
**Company**—Drag Saw and


# We Can Show You How to Feed Stock Profitably at Today's Prices

In spite of today's conditions, California Dairy and Stockmen **can** make a profit, but it must come through greater use of the cheaper roughages and the use of **balanced rations.** Scientific analysis of feeds and the proper combination of protein, vitamines and carbohydrates must take the place of haphazard methods.

## *Where to Get the Advice of an Expert—Free*

For the benefit of Dairy and Stockmen throughout the State who are facing the problem of vanished profits, we have installed a FEED ANALYSIS DEPARTMENT, in charge of an expert. The services of this man are absolutely free to any man who feeds stock. Our expert will tell you what to feed, how to feed it, how to use your own roughage combined with highly nutritious food that can be purchased at a reasonable price.

**Build a Profit-Making Ration from the Feeds You Have at Hand**

It makes no difference what you are feeding now. We can show you what the correct proportion of Camo Pure Hawaiian Cane Molasses should be with first-cutting alfalfa, volunteer oat hay, wheat straw, bean straw or beet-tops, pea vines, rice bran or barley screenings.

**The Importance of Molasses in the Ration**

PALATABILITY is a big item in stock feed. Cattle do not get all the food values out of cheap roughages because they are not palatable. They do not chew them enough because they do not like them. Molasses is a candy to cattle. When you add molasses to your feed it becomes immediately a treat for the stock. The molasses sticks to the gums and the cattle chew and rechew their food. And bear this in mind: 1 pound of molasses equals in food value 1 pound of corn, and is a better food, for molasses is assimilated immediately by the system, while corn requires several hours to digest.

Camo Pure Hawaiian Cane Molasses is 100 per cent FOOD. Use it with your roughage. Ensilage alone is not a fat and milk producer. Sweeten the unmarketable stuff you have and feed it scientifically—and at a profit to yourself.

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Scientific feeding is in its infancy, but its results are readily apparent. As larger acreages are divided and intensive methods become more universal the problem of correct feeding becomes even more intense. Make a start now, **today,** with the aid of our expert's free advice.

**Write Our Feed Man**

Let him show you how you can feed stock at today's prices and **make money!** Send in samples of your own feed. We will analyze it and tell you whether or not you are getting the most from your feed.

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# Health and Winter Gardens

By Charles L. Schufeldt

WHY do we crave fresh vegetables in the spring?

"Back East," after the four or five months of snow and frost, we might expect this craving to be more pronounced than in our all-year-beautiful California. Eastern housewives are wont to can, dry and otherwise preserve vegetables for winter use. In California, however, we may have winter grown vegetables if we will but take the pains to grow them.

Chas. L. Schufeldt

Winter home gardens are altogether too rare in rural sections of California. True, there are big fields of certain crops such as lettuce, cabbage, cauliflower, beets and carrots grown commercially in certain districts. But these crops are produced by specialists; they are not gardens and do not supply farm homes with a variety of fresh winter vegetables. They go to the city markets and help to make up the display on retail stands and peddlers' wagons. City homes have fresh winter vegetables in abundance and in variety—if the purse can furnish the price.

HOME FOOD SUPPLY

But our rural residents often pay higher prices for fresh winter vegetables than do city dwellers, because they pay for transportation to the city, sorting, repacking, and transporting back to the country retailer. They pay profits to each hand through which the produce passes.

Town homes have more home gardens in variety than farm homes, because town dwellers have small available soil space and want to use it economically, and because town dwellers have shorter laboring hours and consequently find time to do garden work.

VEGETABLES AND HEALTH

All-year-round variety home gardens are slowly but surely increasing in number throughout rural and urban California. Why? It is a matter of health.

Doctors are urging the use of more fresh vegetables in the menu. Dietitians are advocating more vitamines. Cooks are beginning to study vegetable cookery. People are slowly discovering their bodies work more efficiently when given a liberal supply of intelligently-served fresh vegetables.

Let a family be denied fresh vegetables for several months and then note the inevitable craving for them. Note, too, the most excellent results from eating fresh vegetables in the spring.

START GARDENS NOW

September is the month to start gardening with a view to having "garden stuff" all the fall and winter. People always get what they want if they want it badly enough.

On the farm, father or mother or brother or sister some day will hear the "home garden" bug buzzing around with its tune of "better health, stronger muscles, clearer brains, better natures and good cheer!"

## The Fall Garden

WHAT shall be planted and how? The best answer to that question is, "Observation." There is almost sure to be some one in every neighborhood who has learned by experience "what to plant and how" at each time of the year. But here are some general recommendations:

SPINACH GREENS

Leaf vegetables are healthful. Spinach comes first and most varieties grow best in fall, winter and early spring. Certain varieties do well in summer. "Large Prickly" is most commonly planted. "Long Standing" is good. Plant these on ridges about 14 inches wide. Let the ridges be about 30 to 36 inches apart, center to center. Irrigate in the ditches between ridges. Planted in September or October, but little irrigation will be needed if the soil has been thoroughly filled with water before the ridges were made. Winter rains soon will follow.

It is necessary to use the ridge method for all winter grown vegetables in order to keep the soil warm and well drained. Avoid flooding or allowing water to flow over the top of the ridge at any place.

Plant two rows of spinach 10 to 12 inches apart on each ridge. For a family of five, plant a double row on a single ridge about 40 feet long, about one ounce of seed being necessary. Repeat this planting in January. In March, plant about half as much.

THE NEW ZEALAND

Plant a dozen seeds of "New Zealand" spinach. Two good plants of New Zealand growing in rich soil, not too light or sandy, will furnish two messes a week for a year. Pick off the tender tips. Let the stem continue to throw branches. New Zealand spinach is very hardy. We saved one volunteer plant, growing with the verbenas. It has given us a mess of greens each week for months, and would supply more. It

*It Is Too Late to Plant Pole Beans*

*In most sections of California. But this photograph conveys a timely hint: Save sunflower stalks this fall to use for bean poles next spring. The manner of tying them is shown above. It is well to brush the stalks with crude oil or old engine oil in order to preserve them and kill spores that may have infested the sunflowers. But this work is negligible compared with that of seeking and cutting good poles in many localities.*


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"I Had Sharp Pains Like Lightning Flashes Shooting Through My Joints."

I want every sufferer from any form of muscular and sub-acute (swelling at the joints) rheumatism to try the great value of my improved "Home Treatment" for its remarkable healing power. Don't send a cent; simply mail your name and address, and I will send it free to try. After you have used it, and it has proven to be that long-looked for means of getting rid of such forms of rheumatism you may send the price of it. One Dollar but understand I do not want your money unless you are perfectly satisfied to send it. Isn't that fair? Why suffer any longer, when relief is thus offered you free? Don't delay. Write today.

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Mr. Jackson is responsible. Above statement true.



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[illegible] cultivation. It has a trailing [illegible] growing much like the Verbena. [illegible] varieties must have more care [illegible] kept free from weeds. They should not be permitted to crowd.

BEANS IN FALL

On the ocean side of the Coast Range of mountains and not too close to the ocean, string beans will mature if planted in September. Plant "Canadian Wonder" or "Red Valentine" or "Stringless Green Pod." The two last are best flavored, but not quite so hardy as "Canadian Wonder." Do not plant pole beans now.

TURNIP VARIETIES

Defer the planting of turnips until after the first good fall rain. Don't irrigate turnips, but be sure the soil is well moistened, to good depth, before planting. Try a few feet of row of Kohl Rabi, and also of Rutabaga. Grow "Snowball" turnips the same as radishes, and Kohl Rabi like cabbage, only set plants about 4 to 6 inches apart. Set Rutabagas about 10 inches apart in rows two feet apart, as tops are large.

GOOD LETTUCE

There really is but one good lettuce and that is "Los Angeles Market" or "New York Special." It makes a bigger, better head than any other. "Big Boston," however, is a fine, delicate-flavored lettuce. As one becomes a vegetable epicure, he will of course grow those varieties that have flavors which best suit his palate.

Fill the soil with moisture and make sure it is fertile, and holds water well. Plant lettuce in double rows on ridges and thin to one plant every six inches, or transplant. Water frequently, but don't flood over the ridges.

FRESH GREEN PEAS

"Green Peas" to Californians often mean tin-can peas. But it is possible to grow peas here sucessfully. However, they cannot be grown in summer in interior valleys. Peas abhor a dry, hot climate. They like cool, moist conditions, especially the humidity. Do not attempt to grow the dwarf or low-growing varieties. Grow "Stratagem" or "Telephone" or "Yorkshire Hero" or "Alderman." And grow them rapidly or not at all. Right now is the best time to plant. Growing good peas is not an easy matter. Bear in mind that all the arts of gardening can be brought into play in growing fresh green peas in California.

ONION TIME

This is onion planting time. Sow seeds two rows to each ridge. Sow quite thickly about ten seeds to the inch, and transplant when the young onions are the diameter of a pencil. Set the plants about two inches apart in the row. In transplanting it is well to cut the tops off, leaving about two or three inches of green top to project above the ground. Onions should grow rapidly in rich, well-drained soil. They do not "like" adobe soil or sandy soil with low fertility. Most onion sets on the market give very poor results. As a rule, they have remained too long in the ground before being harvested as sets. However, onion sets, properly grown, and matured in not more than 70 or 80 days will produce large onions quickly without "throwing" seed stalks. One might plant 100 feet of row of seed and 50 feet of dry sets and see which gives best results.

"Crystal Wax" is a fine flavored, large, soft, white onion. It is a poor keeper and shipper, but unexcelled for the home garden. "Riverside Sweet Spanish" is very popular. For general purposes the "Australian Brown," "Yellow Globe Danvers" and "Southport White Globe" are the three leaders.

BEETS AND CARROTS

"Detroit Blood" turnip beet is very satisfactory. "Egyptian" bottoms a little quicker and gets pithy sooner. "Danvers" carrots are the old standard and there are none better for general use. Grow beets and carrots on ridges in winter.

There are other vegetables for the fall and winter health garden such as turnips, cauliflower, endive and Swiss chard.

To any extent suit the family palate [illegible] before planting. But don't [illegible] like one "finiky" wife (not [illegible]) who says "No use to plant carrots, my family won't eat 'em—nor [illegible] cabbage, nor greens, nor [illegible] truth. No, I know they won't [illegible] and consequently never [illegible] any of them." Better [illegible] the palate if necessary.

# Has the Farmer a Real Grievance?

Yes, he has!

He has a real grievance because the prices he receives for his products have declined more than have the prices he must pay for almost everything he buys.

Because of these facts the farmers are not making as large profits as they believe they are entitled to make. Some blame their troubles largely on the railroads. "Freight rates," they say, "are the cause of low prices for grain and live stock."

The real cause lies much deeper. The decline in the prices of farm products began before freight rates were advanced, and would have occurred if freight rates never had been advanced. It is due to world-wide changes resulting from the transition from war to peace.

## The Railways Have the Same Grievance As the Farmer

The rates the railways are getting, although they have been advanced, are much lower in proportion than the cost of almost everything the railways must buy.

The average passenger rate is about 50 per cent higher, and the average freight rate about 74 per cent higher, than five years ago—in 1916, before this country entered the war.

From these facts it might be thought that the railways should be making money.

BUT—the prices the railways are paying for

Materials and Supplies are now 65 per cent higher than in 1916;

Taxes are 90 per cent higher;

Coal per ton is 144 per cent higher; and

Wages of railway employees are still 124 per cent higher per hour.

In consequence of these things, while the total earnings of the railways are 60 per cent greater than in 1916, THEIR EXPENSES ARE 110 PER CENT GREATER and THEIR PROFITS, SINCE THE PRESENT FREIGHT AND PASSENGER RATES WERE MADE, HAVE BEEN LESS THAN ONE-HALF AS GREAT AS IN 1916.

**What has happened to the Railroads since 1916:**

Increase in Revenue — 60%

Increase in Expenses — 110%

**In 1916 railway wages were $1,469,000,000. After the Railway Labor Board advanced them last year they were at the rate of $3,900,000,000, an increase of 165 per cent. The recent reduction ordered by the Labor Board was only 12 per cent, leaving wages about $2,000,000,000 greater than in 1916.**

**Coal cost $1.76 per ton in 1916, the total fuel bill being $250,000,000. In 1920 the average price was $4.20 per ton and the coal cost $673,000,000, or $423,000,000 more than in 1916. The average cost of railway coal is now $4.29 per ton.**

**With prices of materials and supplies still 65 per cent higher than in 1916, the materials and supplies which the railways bought for $447,000,000 in 1916 would now cost them $750,000,000, or over $300,000,000 more.**

## Present Railway Rates Chiefly Due to Labor Costs —Not to Return on Capital

Existing railway rates are higher not because railroad capital is receiving or seeking a larger return, but because railroad LABOR, and labor producing things the railroads must buy, is getting so much more than formerly.

EVERY INCREASE in rates since 1916 has been intended to meet—but has not met—these increased expenses, CHIEFLY LABOR, and NOT to increase profits.

Railway profits have GONE DOWN.

In 1916 the railroads earned 6 per cent. In 1921 they will be fortunate if, on present rates and present expenses, they earn 3 per cent.

A GENERAL reduction of rates now could not be made without BANKRUPTING most of the railways and making business of ALL KINDS much worse for everybody.

The managements of the railroads are making every effort to reduce expenses so that rates can be reduced later. Some reductions of rates already are being made.

There is NO OTHER WAY than by reductions in expenses to secure general reductions in rates that will not be ruinous to the railways and make them unable to render to the farmers the transportation service they need. Those who obstruct reduction of expenses not only hurt the RAILROADS but the FARMERS as well.

## Association of Railway Executives

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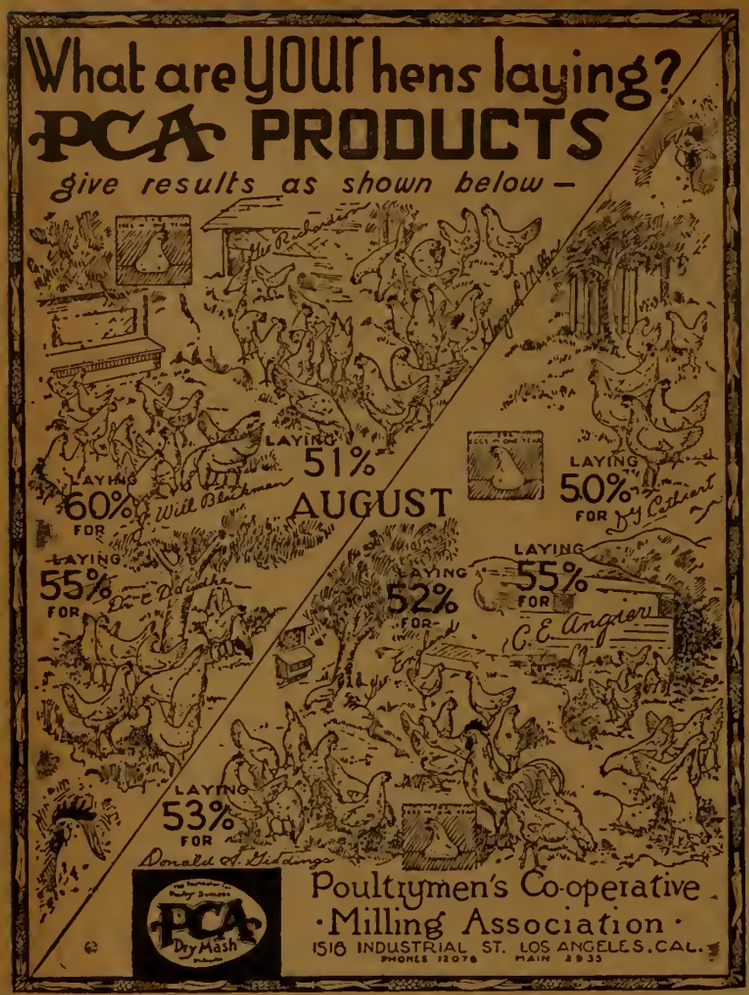
*Those desiring further information on the railroad situation are requested to address the offices of the Association or the presidents of any of the individual railroads.*

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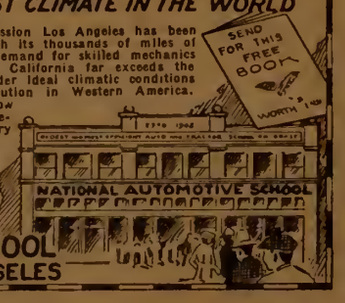


NATIONAL AUTOMOTIVE SCHOOL
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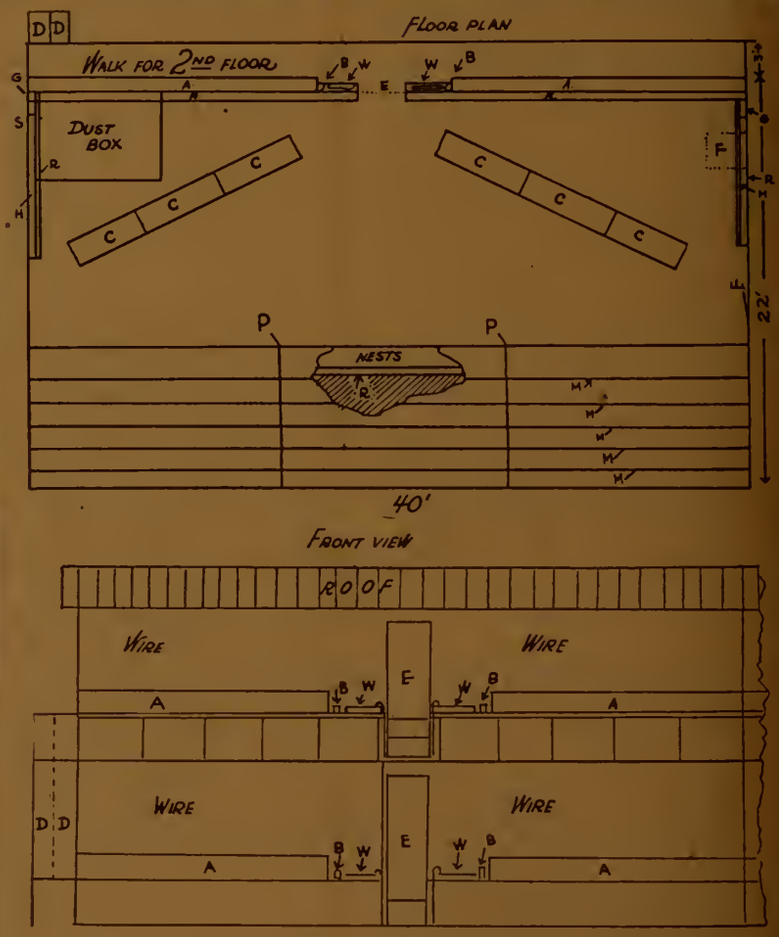
# Here's One Method of Placing the Poultry Business Upon a Higher Plane

By V. O. Hansen

THE two-story poultry house seems to be the next logical development. Heretofore poultry has been raised principally in one-story buildings, and, in fact, until a few years ago, a yard also was considered necessary.

For the past decade, however, even the active Leghorns and Anconas have been reared successfully in floored houses without yards. One man near Inglewood, a suburb of Los Angeles, has brooded chicks, placed pullets in the laying houses and built up his flock—even to fattening the culls for market—all without the fowls having touched foot upon the earth.

For eight years he has bred and improved his strain and increased the egg yield, proving that no yard is necessary when intensive methods must be followed on high-priced land. The two or even three-story poultry house makes possible profitable operations upon the most expensive land—even city lots.




*Going Up! Sectional Diagram of Two-Story Poultry House*

If plenty of sand is kept in the dust boxes and the fowls are given a sufficiency of grit and oyster shell, there is no reason why hens should not do as well in confinement as on open range.

## ARRANGEMENT OF HOUSE

The arrangement of such a house should be planned to save steps and labor. In the accompanying diagram it will be noted that the feed bins are placed where the caretaker has easy access to them, without having to walk around them in his work. The pen is 40x22 feet, giving 880 square feet of floor space. By allowing four square feet to a bird, it will be seen that the pen will accommodate 220 fowls. (Not less than four square feet per fowl should be considered.)

The second floor is seven feet above the first and is arranged similarly. Following is an explanation of the accompanying plans: (a)—Hopper for wet mash and green feed. (Wet mash is fed in the forenoon around 10:30; green feed one to three hours later.) (b)—Buttermilk crock. (c)—dry mash bins. (Each holds one sack of mash. They are built so that the feed cannot be wasted.) (d)—Dumb waiter for raising feed and supplies, for lowering eggs and cleaning second floor. (e)—Doors to adjoining rooms. (f)—Coop fastened on wall for setting hens. (g)—Grit hopper. (h)—Shell hopper. (m)—Perches over dropping board. (p)—Wind-break from dropping board to ceiling. (r)—Running board for hens adjoining nests. (s)—Steps from ground to second floor. (w)—Automatic water fountain.

## THE LITTER CARRIER

An overhead trolley should be used on each floor for convenience in transporting feed and eggs and in cleaning. This style house has several advantages over the old, single-story building. These include: (1)—Labor saving. (It is easier to use the steps and dumb waiter than to walk 50 or 100 feet from one house to another while distributing feed, and all chores are facilitated.) (2)—Cost of construction. (It costs less to build a two-story house than the old type, one roof serving for both buildings.) (3)—Saving in ground space. (On high-priced land ground that would have been used for a second building may be cultivated for the production of green feed. This plan adapts itself readily to a number of small flocks usually kept in a long laying-house.)

## GREAT LABOR SAVER

On a large scale this plan makes it possible for two men to care for 1000 hens, and also for a brooder house of 2500 capacity. The only work not included in the daily schedule for the men is the grading of the eggs, which can be done by a boy or woman. A city man using this plan can care for enough chickens at the back of his lot to pay him well for his time, in addition to furnishing all the eggs used in the home.

## September Poultry Hints

SINCE many young pullets begin to lay at this time, it is not well to house pullets of different ages together. Some will lay 30 days earlier than others and promising young pullets easily are set back two weeks in their production through being disturbed at this time.

When the most advanced pullets are ready to be moved into laying quarters, put them into the houses where they are to remain all winter, so that they may become accustomed to their quarters.

The problem of a partial moult often confronts the poultryman at this time. Many Rocks, Wyandottes, Rhode Island Reds or Orpingtons will lay when nearing seven months of age. They should not be hatched, therefore, at a time that will make them reach this age too early in the fall. Otherwise they may go into a slight moult sufficient to set them back two months in their laying.

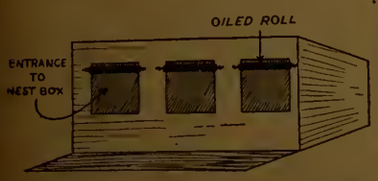
Pullets that get into this condition usually lay only a few eggs, and stop just when eggs are high in price. During the early fall months when production is increasing and the weather is warm, it is well to give particular attention to regular gathering.

Eggs should not be allowed to remain in the nest. The wise poultryman grades his eggs carefully. If small eggs are packed with the large ones, the buyers are apt to discriminate on the basis of the smaller sizes, whereas if they are separated into uniform lots, the small eggs often command almost as good a price as the larger.

As an example of the care sometimes given market eggs, a cartoon recently published in a trade journal showed a farmer driving to town, an umbrella covering the seat, a fly-net and straw hats upon the horses—and the basket of eggs in the rear, exposed to the glaring rays of the sun. Unfortunately, this illustration is too true to life. Better methods of production, handling and marketing pay big profits.—Bill Brahma.

## Substitute for Trap Nest

IN ORDER to check up the production of my hens and cull out those that were not laying, I made a substitute for trap nests as follows: A broom stick was sawed up into six-inch lengths, making rollers, in each end of which I drove a nail. Each roller




was placed over the entrance to a nesting box and held in place with small staples which acted as bearings on which the rollers could turn.

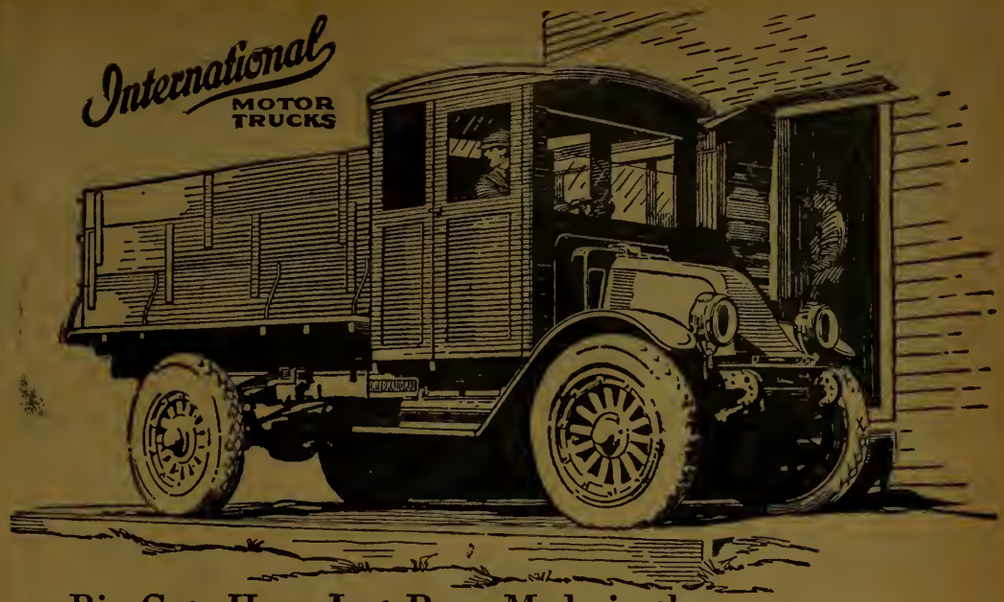
Next the rollers were painted with crude oil. Every hen that entered a nest was "branded" with the black oil, and every hen that did not have a black oil mark inside of five days was considered a non-producer and was sold.

The oil marked the black hens as well as the white hens.—F. O. Winberg, Templeton, Cal. (H)

## Truth at Last

"I say, Harry," said a miner to his mate, "what's a cosmopolitan?"

"Suppose there was a Russian Jew who lived in England with an Italian wife, smoking Egyptian cigarettes, near a French window in a room with a Turkish carpet on the floor. If he then drank American ice cream while listening to a German band playing 'Home Back to Erin,' after a meal of Dutch cheese made up as a French rabbit, then you might be quite safe in saying that he was a cosmo-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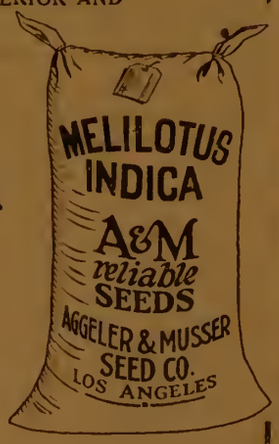


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# Partnership With the Bee

By W. B. Dickenson

WRITTEN ESPECIALLY FOR ORCHARD AND FARM

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## Part II—Securing the Outfit and Stock. Practical Suggestions and Warnings for the Beginner

THE best beginner's outfit, affording every chance for success in beekeeping, consists of one colony of bees (Italian preferred) in an eight-frame hive, combs built from full sheets of foundation, wired in; one extra hive for the swarm or for dividing the colony, containing frames filled with sheets of foundation, wired; two comb-honey supers, with sections folded and foundation starters fixed; one bee-smoker, one pair of bee gloves, a bee veil, hive tool and a book on beekeeping, either "First Lessons in Beekeeping," by Dadant, or Pellett's "Productive Beekeeping." The latter is the latest and the best book on beekeeping.

It also is advisable to secure the free bulletins on bee culture which are issued by the United States Department of Agriculture, Washington, D. C. The advice of neighboring beekeepers also is useful if they really understand beekeeping.

### SELECTING THE BEES

The breeds best known are the common black bee, the Italian, Carniolan and Caucasian.

The common black bee, sometimes called "The California Black," appears to be a general mixture of all breeds, but resembles the black native bee of the north of Scotland. On account of being dark in color, they are termed "black," but, as a matter of fact, pure black bees are unknown in the United States. They are good honey gatherers and, owing to the fact that they raise the caps of their comb a little in the center, making their comb honey appear very white and attractive, it is much sought after by dealers; but often they are very vicious and difficult to handle. They do not defend their hives against the bee moth as successfully as other breeds and (a great detriment) are very susceptible to brood diseases.

### GENTLE BREEDS

The Carniolan and Caucasian are excellent honey gatherers. They are gentle and remain quiet on their combs when an examination of the hive is being made, which makes manipulation easy. For an elevation of 3000 feet or more in California they are excellent, but below that level and especially in the hot interior valleys they swarm to such an extent as to make their contribution to the honey crop very small.

The Italians, as a rule, are very gentle; are quiet on their combs during examination; keep their combs free from the bee moth; defend their hives well against robber bees; are perhaps less subject to disease than any other race and certainly store as large an amount of honey as any others.

Some strains of Italians do not cap their honey quite as white as other races, while other strains do. This makes some of them more desirable as gatherers of honey for extracting or straining than for comb honey, judging from our own experience, our carefully kept records and also the experience of most of the large beekeepers on the Pacific Coast, the superiority of the Italian bee is no longer questionable. They are, without doubt, the most desirable bee, and therefore it is advisable to commence beekeeping with Italians.

### THE HIVE

The single wall hive has been found the most suitable for the Pacific Coast as we have no severe winters, the double wall is unnecessary, expensive and not as durable as the single wall; it must be made of much lighter lumber, which cracks and warps from the heat of the sun. Furthermore, the space between the two walls forms an ideal harbor for moths and other pests. The hive should be made of white sugar pine lumber, seven-eighths inch in thickness, fitted with standard, self-spacing frames, with well fitting cover and bottom board; and, as nothing is more exposed to the weather than a bee hive, it is important that it be well painted with two coats of the best white paint. It is most economical to obtain hives, supers and other equipment in the "knock down" form, but it is perhaps the wisest plan for a beginner to purchase his first appliances complete and ready for the bees. When bought ready for use the materials can be used as a guide for setting up supplies purchased in "the flat."

*A Typical California Foothill Apiary*

### THE SUPER

By "super" is meant that part of the hive in which the surplus honey is stored, as distinct from the hive proper, or brood chamber. Supers are of two kinds, one for the production of "chunk" or extracted honey and the other for comb honey. For the production of extracted honey, frames similar to those in the hive body are used. When the honey is extracted the combs are returned to the supers and again filled by the bees, when the process is repeated. The honey is extracted from the combs by centrifugal force, the comb being whirled around in a machine called a honey-extractor.

In chunk honey the combs of honey simply are cut out of the frames and placed in jars. The frames have another starter fixed to the top bar of each and are returned to the hives.

For producing comb honey the small square boxes termed "sections" (found in grocery stores) are necessary. Each of these sections when placed in position in the super must contain about one inch of super foundation fastened to the top of each in the center. This starter, though small, is quite a

the bees, but its principal value is that it insures the combs being built perfectly level. Comb honey supers, in the first instance, should be obtained from the manufacturers ready for the bees, as many beginners find difficulty in fitting these up correctly.

THE FOUNDATION

"Foundation" is pure beeswax, made into sheets by being passed between rollers; each sheet is an exact reproduction of the midrib of worker comb as made by the bees. It is drawn out by the bees into perfect worker combs. With modern hives it is imperative to use at least one inch starter in each frame, but, considering the start given a colony by the use of full sheets of brood foundation, the satisfaction of having nice straight, strong combs to handle and the power to restrain by its use the overproduction of drones, there is no question that it pays every beekeeper to use a full sheet in each frame in the brood chamber.

THE SMOKER

The "smoker" is practically a small stove with bellows attached, so constructed as to give as much or as little smoke as required. A piece of burlap sack, loosely rolled up almost to fit the barrel or "stove" of the smoker, forms the best fuel.

The use of smoke in handling bees is practically indispensable. Its use, however, is not by any means to stupefy them. A few puffs only—two or three—appear to give them the idea they are about to be turned out of their home; and to make the best provision possible for the future, they at once begin to fill up their honey sacs. While they are so engaged little or no attention is paid to anything else. On opening and examining a hive, to which the right amount of smoke has been administered, the operator notes that, as a rule, not a bee flies.

THE VEIL AND GLOVES

The use of protecting veil and gloves is obvious; they are, however, seldom used by old beekeepers, but as they give a beginner more confidence it is better to have them at first. The gloves at any rate will be discarded soon.

A tool especially made for the beekeeper is used for prying supers off the hive proper, for raising covers, loosening frames and scraping. It has endless uses about a bee yard and costs very little.

HOW TO OBTAIN BEES

It is advisable for a beginner to obtain his first colony or colonies from a breeder who makes a business of raising bees for sale. These men have a reputation to maintain and take care that what they supply will give satisfaction. Bees very often may be obtained locally at a considerably lower

(Continued on Page 33)

# The Magic Formula

(Continued from Page 9)

searched among the debris. A torn letter and a folded newspaper were the only objects he found. He stuffed these into his pocket.

AT the sheriff's office they told their strange story. The officer called three deputies from the adjoining room. "Take the fast car and go south along the highway," he commanded. "Them fellers 'll head for the border. I'll telegraph down the line."

"No! Just a minute boys."

The officers turned in surprise at Robert's imperious exclamation. He had extracted the letter and paper from his pocket. "Here, sheriff, I found these on the floor. One of those cut-throats must have dropped them during the fight. They aren't yours, are they?" he added, thrusting the papers before the still half-dazed watchman.

"No."

"Then they must have belonged to one of those fellows." He held them to the light. "This letter was written recently. No envelope here; no address. H'm-m! It's in a sort of foreign hand. Look, sheriff!"

Together they scrutinized the sheet. "It's from a mother to her boys; a faltering old mother, I should judge; cramped, trembling hand; ignorant; couldn't spell. But she urges them to come and see her. Says she is sick.

"Now, the newspaper. There we are! Can you make it out? The Enden-Endicott. That's it! The Endicott Weekly Transcript. Some of the local items are marked, you'll notice. Endicott—Endicott! Let's see! Where is that?"

"Why, It's a little settlement west of here, about twenty miles, and off the railroad," said the officer. "But, here we're wastin' a lot of time. You men get started now. They'll head for the border, sure, and we've got to stop 'em before they get out of the country."

"Wait, now!" Again Robert interrupted. "Send your men to Endicott first. Those fellows may break for the border, but they won't leave the country until they have gone home."

"Why," shot out the officer "What do you know about it? Two desperadoes ain't goin' t' waste no time on sentiment when they think they are cornered. They'll try to get out of the country, I tell you sick mother or not, or anything else. That letter showed they have been near her for months."

"Let your own way. Send your men to Endicott and one man to go with me? I am driving to Endicott."

Surlily the officer acquiesced.

"Dorris, I must leave you for a while. May I take the car, dearest? I am sure——"

"But, Robert, you were badly hurt, and I am afraid—for you, I mean. You mustn't take any more chances."

"There, there. I'm all right. Don't worry. Hop in. We haven't any time to lose."

And almost before she knew it, the girl found herself unceremoniously deposited at a hotel, and heard the big machine roaring forth into the night.

WEARILY she went to the room assigned her, but for hours she could not sleep. Time after time she arose and gazed out of the window. Once she pinched herself to make sure she had not dreamed it all. She imagined her lover in a thousand terrible situations; then found herself reviewing the past events of her life.

Self-reliant, self-supporting and self respecting, motherless Dorris Weston had asked no special favors of the world nor of her father, who had not even returned for his estranged wife's funeral. Through the good offices of her uncle she had been well-educated and had never wanted. But after her school days were ended, she had chosen to join the great army of modern American girls who are meeting life on its own terms and who are not afraid.

Business experience had taught her many things, but had not robbed her of her natural charm nor her instinct for simple goodness. Each year had found her back at her uncle's farm, and incidentally at the little town of her girlhood, for the wanderlust never had overcome the cherished memories of her home.

Little in fact, had occurred to upset the happy serenity of her care-free life, until, a year before, she had met Robert Harper. As fellow employes of a great corporation in a far-western city, they had been much in each others company. Each had responded to the loneliness of the other. But upon the very heels of love had come a misunderstanding, a quarrel, separation.

Her first instinct had been to return to the little town "back home", but finding that the visit only added to her misery, she had left suddenly, vowing never to go back to Deerfield.

The intervening months had eased the pain but had not filled the void in her heart. She did not know what it was that had drawn her now, in spite of her resolutions, here to the old familiar scenes. However, she breathed a

(Continued on Page 31)

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# YOUR GARDEN of FLOWERS

*by Helen Temple*

## Growing House Plants

HOUSE plants are found in perhaps 90 per cent of California homes. Frequently the garden out-of-doors is limited to a very small space, or the soil is too heavy for good results, but indoors plants of many varieties, beautify windows and rooms. For these may be grown regardless of the soil and climatic conditions out of doors.

Helen Temple.

General cultural requirements are much the same for the majority of house plants. They require moist rich soil, a sheltered position and filtered sunshine.

Begonias, of both the tuberous and fibrous varieties, glorianas, calceolaria, primulas, cinerarias, cyclamens and coleus are propagated and grown under similar conditions. They are propagated from seed, cuttings or bulbs. The fact that temperature and light may vary after the plants are potted does not indicate a difference in the systems of starting the young plants.

### PROPAGATING FROM SEED

Shallow cigar boxes, with a dozen small holes in the bottom for drainage make excellent seed boxes. Each hole should be covered with a bit of broken crockery or glass before filling the box with the soil mixture. The ideal soil mixtures consists of one-third sifted light loam, one-third clean, sharp sand, and one third pulverized leaf mold. The soil must be thoroughly mixed. Fill the seed boxes to one half inch from the top, pressing the soil firmly into them with a small block of wood. Sow the seed evenly over the surface and press into the soil with the block. Set the seed box into a pan of luke warm water.

When the surface becomes thoroughly dampened, remove from the water and place in boxes in sheltered spot in the green house or porch. A sheet of glass must be kept over them until the seeds are well sprouted. Moss should be kept over the glass in a moist condition until germination occurs, then gradually accustom the seedlings to the light.

When the seedlings have developed four leaves, transplant to similar seed boxes about two inches apart. When they are three inches high, transplant to individual pots or window boxes, using the same soil mixture. Never allow the roots to become crowded or the soil to grow dry. Drainage too is absolutely essential.

### WHERE TO KEEP PLANTS

This class of plants must not be allowed to remain in the hot sunshine for more than an hour or two each day. They should be placed where they will not be subjected to draughts of any kind. In the lath house, such plants do exceptionally well when planted in beds. The beds are filled with the soil mixture recommended for pots, after six inches of gravel has been placed in the bottom. Ferns, together with these plants, make beautiful beds and window boxes. Quite often, a large pot will furnish ample space for planting a border of drooping ferns about a bright-leaved pot plant such as the Rex Begonias. Several pots of this kind furnish excellent decoration in an east or north window, brightening an otherwise dull room.

### GROWING OUT-OF-DOORS

An excellent situation out of doors, in California's semi-tropical regions, for this class of plants, is often found in an angle of the house, on the north or east side. A large oak tree may give ample protection for the cinerarias, coleus, cyclamen, tuberous begonias and ferns. Such a situation in fact, gives the most natural setting of all. This arrangement, however is not possible in the interior or cold coast regions. In fact, there are many localities in the semi-tropical districts where this is impossible and if you are doubtful, keep this class of plants in the lath house, or pot them for the house. With ordinary care, they will live and thrive almost as well as in their native homes.

## The Tuberous Begonia

TUBEROUS begonias can be started from seed, but it is not advised. Purchase the tubers from a reliable nurseryman and plant them in the early part of March. The soil mixture as recommended for this class of plants with the addition of a small amount of well-rotted cow manure, gives an ideal soil. Plant the tubers in shallow boxes if they are to be used out doors or in a window box. If, however, they are to be used for pot plants, it is advisable to plant them directly into small pots. When they are about four inches high, transplant to larger pots or into their permanent bed. They must not be crowded. In the beds, allow them 15 inches of space.

In November, the tuberons begonia usually finishes its blooming season and shows signs of rest. The plants should be taken up, cleaned of old foliage and soil and buried in boxes of sandy leaf mold. Put them away in a dry, dark corner until spring.

### RESETTING THE BULBS

When the young tubers show many eyes in the spring, they may be divided with a clean sharp knife, allowing two eyes to each division. Some gardeners allow but one eye, but I advise leaving two. Sprinkle the cut surfaces with dry charcoal or sulphur dust, allowing them to dry before setting out.

For the flowering begonias, best results are obtained when all "side buds" are pinched back, thus giving the entire strength of each stem to its central bud.

The tuberous begonias usually are classed according to their colors. There are double and single-flowered varieties. The best hybrids are large flowered, quite often being frilled and crested. The foliage is thick, the stems stocky. The flowers should be large and distinctly colored. Colors usually are brilliant scarlet, pink, salmon, orange, bronze and pure white. A few of the named varieties are unusually large and of exceptional coloring. It is advisable to consult your local florist, purchasing your plants from him when possible. If this is not possible, buy your plants from a well known seed company of California. Quite often valuable plants are ruined in transit when shipped from the East, especially the more delicate varieties. Begonias are best shipped early in January. Then they will not have begun their growth and are more easily handled.

The cultivation of fibrous begonias and other house plants will be taken up next month.

## What to Do in September

THE planting of bulbs may be begun this month in most sections. Callas, Iris and Freesias may be set out. In the semi-tropical, mild coast and mild interior regions, seed sowing and transplanting are carried on with almost as much vigor as in the spring. Sweet peas for Christmas blooms should be sown early.

Carnations, pansies, stocks, canterbury bells, cosmos, centaurea, calendulas, lobelias, candy-tuft, columbine, forget-me-nots and antirrhinum may be sown and transplanted. This month is an excellent month in which to set out climbing vines such as the Passion Flower, Virginia Creeper, Smilax, Moon Flower, Australian Pea and Cobea Scandens. Early summer will find them 'doing their bit.' In the hot interior valleys, sow wild cucumber vine seed. This makes an excellent shade during the summer.


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No Straining
No Odor

Shipping Weight, 2½ Lbs.

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The Apiary Department, which is in charge of experienced Bee-Keepers, is one of the largest of its kind in the United States, and maintains a constant excellence of product and unsurpassed service.

Write for catalogue and if a beginner for Cottage Bee-Keeping, which will be promptly mailed free.

**THE DIAMOND MATCH CO.**
**APIARY DEPARTMENT**
**CHICO, CALIFORNIA, U. S. A.**

# BOYS AND GIRLS
## Their Work and Play

### Bird Story Contest Ends

THE Editor received so many interesting and well-writen stories about birds that it was a difficult matter for the judges to select the prize winners. However, after much careful thought, the following were chosen to be the lucky winners:

**First prize ($1.00). Jane Taggard, Tulare, Cal.**

**Second prize (50c). Gordon Hadley, Arcata, Cal.**

**Third prize (40c). Juanita Wyatt, Fullerton, Cal.**

**All In Bright, New Dimes**

Their stories are published below, and we wish we might include, this month all of those submitted to us by our little readers because of the interest in bird life displayed by the boys and girls. But lack of space makes this impossible.

The following were awarded Honorable Mention:

Lorin De Merritt, Sacramento, Cal.; Amelia Fiala, San Diego, Cal.; Willard E. Adams, Gridley, Cal.; Emily Domingos, San Luis Obispo, Cal., Lelia Sims, Winters, Cal.; Bernice Carlson, Madera, Cal.; Dorothy Vern Moore, Madras, Ore.; Doris McCulloch, Alpaugh, Cal.; Philo Wood, Hopland, Cal.; Robert McCune, Lemoore, Cal.; Ross Anderson, Fresno, Cal.; Clementine Leonardi, San Rafael, Cal.; Clara Kock, Atwater, Cal.; Ruth Morgan, Shafter, Cal.; Beulah Luce, Olga Hein, Anaheim, Cal.; Helen Hein, Anaheim, Cal.; Ellen Faublon, Rivera, Cal.; Veva Lamon, Lemon Grove, Cal.; Bernard Eckardt, Fresno, Cal.; Richard Brown, San Rafael, Cal.; Elene Ensign, San Francisco, Crow's Landing, Cal.; Gladys Hare, Inglewood, Cal.; Gretchen Schroeder, Dixon, Cal.; Rose Criscione, Campbell, Cal.; Lavinia Compton, Orange, Cal.; Leroy Carlson, Madera, Cal.; Esther Fonda, Inglewood, Cal.; Frederick Peckham, Hanford, Cal.; Dorothy Sanchez, Stockton, Cal.; Tane Yoshihara, Gardena, Cal.; Esther Ensign, Los Angeles, Cal.; Hans Johnson, Minden, Nev.; Wilma Baker, Kingsburg, Cal.; Estin Ensign, Los Angeles, Cal.

### First Prize

**The Lost Glasses**

IN the summer time my grandmother would sit out in the yard where it was shady and cool to do her sewing, and it was her habit to hang all threads, ravelings and scraps on the branches of a vine which covered the arbor. One summer a pair of mocking birds were building a nest a few feet above her head, and they would take all the strings and ravelings soon after she hung them there.

She wore a pair of glasses that were tied with a string on the bows around her head to keep them on. A friend drove by and stopped for a little visit, as was her custom. Grandmother laid down her glasses with her sewing and went out to the gate.

When she returned to her work, her glasses could not be found anywhere. She, with the help of the children, hunted for days, but could not find them. In the fall, after the leaves had fallen, mother was sweeping loose leaves and spider webs from the arbor, and there, hanging under the deserted mocking bird nest were grandmother's glasses, the string fastened securely to the nest.—Jane Taggard, Tulare, Cal.

### Second Prize

**Blue Jay the Farmer**

IT may be a common practice for some birds to store up a food supply, but the blue jay goes so far as to plant and grow their own food. In the mountain regions where there are long electric lines [illegible] the power to the city, [illegible] are used, which, from their [illegible] to the weather, develop long, [illegible] times running around [illegible] from the top to the bottom. [illegible] a pole which at first [illegible] of thousands of little knots, but upon closer investigation the "knots" proved to be acorns, hammered solidly into the cracks, even with the surface of the pole.

Each acorn was fitted snugly against the next one and the sides of the crack had been neatly trimmed to the shape of the acorn. They were driven in so hard that it was difficult to loosen them.

In watching the blue jay later in the season, I noticed that he selected only those acorns containing worms, leaving the good ones until they, too, became wormy. Thus he found it unnecessary to dig for the family meat supply.—Gordon Hadley, Arcata, Cal.

### Third Prize

**The Tiniest Nest**

ONE day last spring my father came in from the orange grove and asked me to guess what he had found. I said I could not guess, so he told me it was a humming bird's nest. I went down to see it, and found the tiniest nest I had ever seen. It was lined with hair and thread, and the outside was covered with bark from the orange trees, so that it was very hard to find. There were two little eggs in the nest.

Not long after, the eggs hatched and the little birds grew so fast that they soon filled the nest, and the mother bird had to sit on the side of it. Whenever I went near her home, she would rise in the air, and her little wings would flutter so fast that they made the humming sound that has given her her name.

The humming bird has a long bill, which enables it to sip the sweet nectar from the flowers.

Another humming bird's nest was found built on top of an orange, with one side fastened to the stem.—Juanita Wyatt, Fullerton, Calif.

### Useful Dominoes

ONE of the best ways of learning quickly to add small figures is by playing dominoes. But even the very youngest reader of ORCHARD and FARM can have fun with this useful game by standing the dominoes on end in a long row and knocking over the first one The dominoes will fall one after another, and if the row is made in the form of an "S" or a circle, the result is very amusing.

As many as 50 or 100 dominoes may be set up in this manner, and when the first one is pushed over, the movement will follow the row, even if it includes several curves.


# HOW MUCH DOES A NEW PUMP COST?

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*Fill in and mail to Layne & Bowler Corporation, 900 Santa Fe Ave., Los Angeles.*

*Is well drilled?*.....

*If so what diameter?*.....

*Depth of well?*.....

*Depth to water?*.....

*How much water desired?*.....

*How much does water lower?*.....

*Is water to be lifted above level of ground?* .....

*Want belt or direct motor drive?*.....

*How many acres?* .....

*What crops raised?*.....

*NAME* .....

*ADDRESS* .....

*CITY*..... *STATE*.....

# HELPFUL HINTS for THE HOUSEWIFE

Edited by Isabel Sinclair

### "GOOD FOR WHAT AILS US"

For loneliness, discouragement, unhappiness, evil thoughts, heartache, sorrow and discontent, there is one great God-given remedy Work Good, old-fashioned work, done willingly and with whole heart, mind and body, is the balance wheel of civilization.

Dear Friends:

Farm women more and more are taking advantage of opportunities not open to city women to earn their own spending money in the various enterprises possible to conduct on the farm.

Hand painted china, embroidery and crochet usually are the first to suggest themselves as a possible means of producing an income, but the demand for these articles is small and uncertain. A home demonstration agent, now established in almost every community, has played the fairy godmother to many farm women.

She has assisted them in deciding upon the thing which people want and need, and which the one desiring an income can make better than any one else or something that she can supply from her resources for which there is a real demand. And more than that, the demonstration agent has instructed the women in producing such things in the most efficient and finished manner.

MONEY-MAKING PLANS

The stories are many of the farm women who have made a big success in various branches of work which they easily carry on in connection with the regular routine of duties. One woman has been raising garlic, selling the buttons, or roots, for planting and the tops, or sets, for seasoning to the chili factories. One year she sold 30,000 pounds of garlic at 30 cents a pound and 15,000 pounds of seeds.

Another busy woman sold around $850 worth of pork one year, and now has several milk cows with which she expects to earn more money. One woman chose sheep raising as her activity. In 1920 she had sixty head of sheep worth about $500, and sold $109 worth of wool. She always has a little money coming in and does very little work, considering the revenue.

Others have chosen poultry raising, dressmaking or canning. One versatile woman makes a specialty of "gift" boxes, each box containing a few perfect oranges, grapefruit, tangerines or nuts. They are sold packed and ready for shipment to the tourists, who send them as gifts to friends "back home."

And so it goes. A more systematic mode of living, modern labor saving devices, and a desire to do, have taken the drudgery out of routine duties and enabled many farm women to engage in remunerative work that will make the balance in the little bank book take on a happy expression at the end of each month.

Sincerely,

Isabel Sinclair

## Rhubarb Jam

8 cups rhubarb
5 cups sugar
1 cup raisins
Pulp of one orange

Put sugar over rhubarb and let stand several hours. Then add raisins and orange and boil slowly for two or three hours. To avoid the much necessary watching, this jam may be cooked in the oven. An asbestos mat also is a wonderful help when canning.—Mrs. L. C. Dittman, Lompoc, Cal. (H)

## To Set Colors

To prevent blue or lavender cloth from fading put an ounce of sugar of lead into a pail of water, soak the material in the solution for two hours and let dry thoroughly before washing and ironing.—Mrs. C. C. Richmond, Riverside, Cal. (H)

The Home is the Hub of the Universe

## Dissolving Wash Day Problems

THE secret of having a line of snow-white clothes, containing just the right degree of stiffness, where stiffness is desired, is readily discovered if the proper methods of washing and rinsing are employed.

One to one and one-half teaspoons of borax to a gallon of soft, soapy water, in which clothes are put to soak, aids greatly in loosening the dirt and promotes a generous lather when one is ready to begin the process of washing. The borax tends to soften hard water.

Perhaps few realize how important it is to remove all traces of soap and washing soda from clothing in the rinsing, as these substances, left in the fiber, tend to weaken the material when heated in ironing.

Either borax or ammonia is good to soften the rinse water. And when clothing, from long standing or poor washing and drying, has turned yellow and requires bleaching, soaking for several hours in water containing borax—one-fourth cup to one gallon of water—will restore the former whiteness.

A STARCHING HINT

So often it is difficult to starch clothes to just the right degree of stiffness, and good starching is important, as it restores the gloss of new material and makes clothes stay clean longer. The following is a good recipe for cooked starch:

1 to 4 tablespoons starch (according to stiffness desired).
1 cup (½ pint) cold water
½ teaspoon borax.
½ teaspoon paraffin or white fat.
1 quart boiling water.

Make a paste of the starch and cold water; add the borax, paraffin or fat, and the boiling water. Boil the mixture, stirring thoroughly until clear, or for about twenty minutes. Remove any scum that forms and strain starch while hot.

FOR THIN FABRICS

A solution of borax water (about one teaspoon of borax to one quart of water) may be used for stiffening very thin fabrics such as laces, voiles, organdies and dimities. It gives body and crispness to the material and does not clog up the "pores" of the cloth.

Borax is only mildly alkaline and may be used with colored clothes and woolens without harm. In this instance neither washing soda nor lye should be used. Use a good laundry soap.

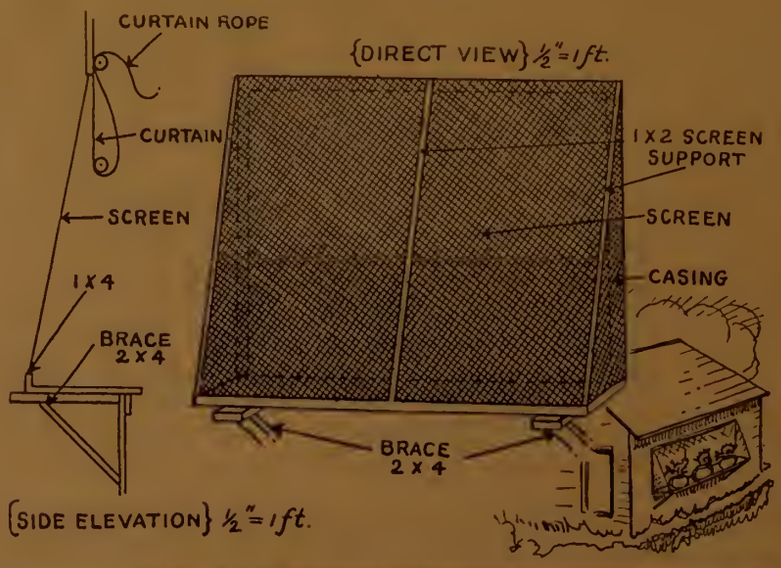
## How to Make an Enclosed Porch More Attractive

TO ADD to the attractiveness of any enclosed porch, an extension may be constructed as indicated by the accompanying diagram. The length of th extension will be determined by the size of the porch and the desires of the owner.

The idea is to provide a shelf about eighteen inches wide upon which plants may be set, these adding to the attractiveness of the porch, both inside and out.

Moreover, the flowers and plants serve partially to screen the occupants from view. If desired, a regular window shade may be hung inside for protection in severe weather, or the outside of the extension may be covered with an ordinary sash.

I offer this suggestion because I know how pleasing and practicable such an extension may be, having carried out the idea in several houses in which I have lived.—Dr. Beverly Young, Arvin, Cal. (H)




## Use for Stale Bread

BAKERS often use stale bread and dried, finely ground cake in place of part of the flour in making fancy breads, cakes and cookies. The housekeeper can often avoid waste by using them in this way in griddlecakes, cakes, cookies, etc.


### FREE TO OUR READERS

I have discovered simple, practical, easy method that quickly starts hens laying so fast, winter or summer, that it is something simply wonderful. Secret gladly sent free if you write quick, inclosing self-addressed envelope. Mrs. Watson, B-122, Farmingdale, So. Dak.—Adv.


## For the Preserve Shelves

THE canning season brings forth the question of something new and a bit "different" to fill the preserve jars on the housewife's pantry shelves. Raisins play an important part in the following recipes, issued by the California Associated Raisin Company:

RAISIN JAM

3 cups rhubarb
3 cups sugar
6 oranges
1 cup raisins
¾ cup chopped walnut meats or blanched almonds

Cut rhubarb in small pieces. Add sugar; cook until tender. Add orange pulp and raisins, cut in small pieces Cook about 20 minutes until thick. Add nuts and cook five minutes.

PLUM AND RAISIN JAM

6 cups pitted plums
3 cups water
2 cups raisins
4 cups sugar

Cook plums in water until they begin to soften. Add raisins and sugar. Cook slowly for about 40 minutes, stirring occasionally, until mixture is thick. This makes about six glasses.

ORIENTAL MARMALADE

2 cups dried apricots
1 cup dried figs
1 cup dates
2 cups raisins
4 cups cold water
1½ cups brown sugar
2 lemons

Cut apricots, figs, dates and raisins in pieces. Cover with cold water and soak over night. Add sugar and juice from lemons and cook about 40 minutes, until thick. This makes about six glasses.

CRANBERRY CONSERVE

4 cups cranberries
1 cup raisins
1 orange
3 cups sugar
1 cup broken walnut meats

Cut cranberries in halves; wash in strainer to remove as many seeds as possible. Chop raisins and orange pulp and rind. Add cranberries and sugar and cook until thick Add nuts and cook five minutes. This makes about six glasses.

CURRANT, RASPBERRY, RAISIN JAM

3 cups red currants
3 cups raspberries
3 cups chopped raisins
5 cups sugar

Mash currants to start the juice and place over fire. Add raspberries, raisins and sugar. Cook slowly about an hour until thick. Sufficient for six glasses.

## Little Helps

Washing machines can be replaced but women's backs cannot.

* * *

Good food, sunshine and fresh air are mighty fighters against disease.

* * *

If you are remodeling the kitchen, be sure and leave a space for the cold air closet.

* * *

How about that bread box? Frequent scaldings and summer sunshine make it pure.

* * *

Try a picnic supper with the family. Do something to make farm life happy for the homefolks.

* * *

It is better to water the lawn and garden thoroughly once a week than to sprinkle lightly every day.

* * *

Remove water spots on furniture by rubbing with a moist cloth on which a few drops of ammonia have been placed.

* * *

Try to use some raw food every day. Several leaf vegetables can be served raw, and fruits are especially appetizing.

* * *

A great deal of milk, at least a pint a day for each person, young and old, is recommended. This may be combined with other foods as in broiled potatoes, cream soups and gravies, creamed vegetables, custards and desserts. But milk in some form is perhaps the most perfect food

these patterns, as to price and style, with those obtainable elsewhere'

# PRETTY COSTUMES

## Selected by Isabel Sinclair.

*These costumes are simple and can be made readily by the home dressmaker from the instructions provided. Send 15 cents in silver or stamps for each pattern desired. Address Pattern Department, Orchard and Farm, 1111 South Broadway, Los Angeles. Give full name and address.*

**3690-3696—A Stylish Coat Suit**

Coat 3690 cut in six sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Skirt 3696 cut in seven sizes: 24, 26, 28, 30, 32, 34 and 36 inches waist measure. To make this suit for a medium size will be required 6¼ yards of 44-inch material. The width of the skirt at foot is 2⅜ yards. Two separate patterns; 15 cents for each pattern.

**3714—Girl's Coat**

Cut in four sizes: 6, 8, 10 and 12 years. A 10-year size will require 2⅝ yards of 46-inch material. Price 15 cents.

**3689—Girl's Dress**

Cut in four sizes 8, 10, 12 and 14 years. A 12-year size will require 4½ yards of 36-inch material. Price 15 cents.

**3694-3700—Lady's Costume**

Waist 3694, cut in six sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Skirt 3700 cut in seven sizes 24, 26, 28, 30, 32, 34 and 36 inches waist measure. The waist will require 3 yards of 27-inch material. The skirt requires 3½ yards of 40-inch material if without nap, and 3⅛ yards of 44-inch material with nap. The width of the skirt at the foot is 2⅞ yards. Two separate patterns, 15 cents for each pattern.

**3705—Lady's House Dress**

Cut in seven sizes 36, 38, 40, 42, 44, 46 and 48 inches bust measure. A 38-inch size requires 6¾ yards of 27-inch material. The width at the foot is 2¼ yards. Price 15 cents.

**3448—Girl's Dress**

Cut in four sizes: 4, 6 and 8 years. A 6-year size requires 2[illegible] yards of 27-inch material. Price 15 cents.

**[illegible]—Misses' Dress**

Cut in [illegible] years. An [illegible] size requires [illegible] of 44-inch material. The skirt at the foot is [illegible] yards. Price [illegible] cents.

**3693—Child's Romper**

Cut in four sizes: 2, 4, 6 and 8 years. A 4-year size requires 2¼ yards of 27-inch material. Price 15 cents.

**3448—A Pleasing Apron**

Cut in four sizes: Small, 32-34; medium, 36-38; large, 40-42; extra large, 44-46 inches bust measure. To make the medium size will require 4½ yards of 36-inch material. Price 15 cents.

**CATALOGUE NOTICE**

Send 15 cents in silver or stamps for our up-to-date fall and winter 1921-1922 catalogue, containing over 500 designs of ladies', misses' and children's patterns, a concise and comprehensive article on dressmaking; also "Some Points for the Needle," illustrating 30 of the various simple stitches. All valuable hints to the home dressmaker.

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Herewith find.....cents, for which send me the following patterns:

Pattern No..... ..... Size .....

Pattern No..... Size.....

Pattern No..... ..... Size.....

Be sure to give number and size. Send orders for patterns to ORCHARD and FARM, 1111 South Broadway, Los Angeles. Be sure to sign your full name and address below.

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Address ..... ..... .....

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FOR SALE—Ten acres unimproved land in heart of Willamette Valley. Twelve miles from Salem, Ore, forty-three miles from Portland, Ore., three miles from Oregon Electric. This land sells for five hundred dollars an acre when cleared. No large stumps on the place. Price $1800. Write SAM MORELL, Canby, Oregon, Route 2.

RANCH for sale, 480 acres, ninety miles south of Calgary; 175 acres under cultivation; house, barns, cattle, etc. Particulars on application. Address D. ASHWORTH, Livingstone, Alberta, Canada, via Lundbreck.

OREGON—Write for list of bargains. In stock, Grain, Fruit and Poultry Ranches. Henry Ambler, Philomath, Benton County, Oregon.

C. EDNER has all kinds of ranches, from $9 to $700 per acre; good business opportunities of all kinds and gold mines in El Dorado Co. C. Edner, Placerville, Calif.

830 acres of fine fruit and grape land. Improved; $25.00 acre. Stacy, 401 Fay Bldg., Los Angeles.

STEVINSON, 5-acre irrigated. Cheap for quick sale. Box 280, Sterling City, Cal.

### SAN JOAQUIN VALLEY LANDS

**San Joaquin Valley Ranch**

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40½-ACRE alfalfa ranch for sale in a prosperous alfalfa and dairy section of Fresno Co., 30 miles s. w. of Fresno; Kings River water 30 acres seeded, fine stand. 4-room California house, domestic well. $250 an acre, half cash, balance 9 years at 7 per cent. For full particulars write owner, P. SCHILZ, 3118 Humboldt st., Los Angeles, Cal.

### ANTELOPE VALLEY

THE Great Antelope Valley Alfalfa producing district now has a fine paved road direct to Los Angeles. Hundreds of Big truck loads of alfalfa hay go direct from the producer to the dairyman; good raw land in the easy lift water belt; $60 an acre, one-fifth cash. Write us. The R. & L. Ranch, 611 Fay Bldg., Los Angeles.

### SUBURBAN HOME

FOR SALE, $9000. 7-room modern up to date house with one acre of ground in 60 fruit trees, all bearing and assorted. Garage, chicken houses for 1000 chickens. 250 White Leghorn chickens, and all ground under cultivation and irrigation. Chickens included in price. This is a beautiful home, and must be seen to be appreciated. Churches and schools walking distance. Address Owner, MRS. W. B. SMITH, 2314 Sierra Vista st., Alhambra, Calif. Monterey Park section.

## FARMS WANTED

FARM WANTED—Wanted to hear from owner of a farm or good land for sale; possession this winter. L. Jones, Box 489, Olney, Ill.

WANTED—To hear from owner of good ranch for sale. State cash price. Full particulars. D. F. Bush, Minneapolis, Minn.

WANT to hear from owner having farm for sale. Give particulars and lowest price. John J. Black, 110 St., Chippewa Falls, Wis.

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### CARLSBAD-BY-THE-SEA

Carlsbad Ranchers are preparing their land for planting of winter crops of Green Peas, etc. This crop has proven highly profitable in the past, as other districts are too cold to grow them and they bring very high prices. Avocados are proving highly successful there. A most equable climate, on main line of railway, State highway, close to the sea. For prices, maps, etc., call on or write SOUTH COAST LAND COMPANY

Broadway 5395. 14534.

E. M. CLAUSSEN, Sales Manager, 712 Garland Bldg., 740 Broadway Los Angeles, Cal.

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HOMESTEADERS ATTENTION—Tract of rich, level valley grass farm land opened for homesteaders. Plenty of water. Timber close by. Not a desert; no sagebrush or alkali; fine stock and farming country; grows everything without irrigation; pleasant summers; mild winters. Join us and get 320 acres. $350 pays all expenses. 699 Pacific Electric Bldg., Los Angeles.

GOVERNMENT LAND—640 acres, 1 cent per acre; residence not required; level, alluvial silt, Imperial Valley type, near railroad, we locate, fence, furnish water or cultivate at modest rates. P. O. Box 313, Oakland, Cal. Enclose stamp for full particulars.

IRRIGATED CITRUS FRUIT LAND (cleared) in Lower Rio Grande Valley. No cash down. Pay for land with crops. Fruit month earlier than elsewhere. No fertilizer. Only few plots available. Write immediately. Alvin Wangler, Santa Maria, Texas.

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FRENCH PRUNE TREES—We have some of the best prune trees on the market. Write for our price list. You will be surprised at our low prices. Good references. HOOKER OAK NURSERY, Chico, California. Box 910.

PLANT THE NEW RAINIER APPLE. Pronounced by U. S. Department of Agriculture greatest keepor of all. Write for information. WASHINGTON NURSERY CO., Toppenish, Wash.

FOR SALE—Grape vines. Muscat, Tokay, Sultana, Cornichon, Rose of Peru, Red Emperor. A. W. Brewster, Box 46, West Eleventh St., Claremont, California.

## FIELD SEEDS, GARDEN STOCK

FOR SALE—Sweet Spanish Riverside Onion Seed. Proven high germination, 60c oz., $6 pound. E. Juckett, 3727 N. Griffin, Los Angeles.

WILD heliotrope seed, also fall sweet clover seed. Package, 15c each. GOOD FOR BEES. MRS. J. M. MENDENHALL, Pleasanton, Cal.

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FOR SALE—Registered grade Toggenburg and saanen milk goats and kids. Fine stock for starting a herd. For service, El Rey de la Estrella, No. 7406, pure bred naturally hornless Toggenburg buck. Service fee $5. Ed. Thomas, Rodeo, Cal.

FOR SALE MILK GOATS—The largest, most select herd of heavy milkers in California. Pure Swiss and grade Toggenburgs, reg. Weaned kids, ready for shipment; 4 beautiful pure bred bucks. We raise nothing but the best. La Corona Goatery, El Monte, Cal.

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## LIVESTOCK—Duroc Jersey Hogs

SPECIAL—Weanlings sired by a son of King Orion Jr., who was second prize winner at the National Swine Show, 1919, and grand champion San Francisco Land Show, 1919. H. E. BOUDIER, Napa.

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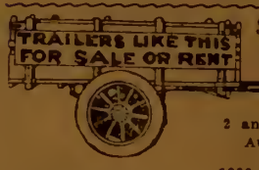


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CORN HARVESTER cuts and piles on harvester or windrows. Man and horse cut and shock, equal corn binder. Sold in every State. Only $28 with fodder tieing attachment. Testimonials and catalog FREE, showing picture of harvester. PROCESS HARVESTER CO., Salina, Kans.

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TOBACCO—1919 leaf, best chewing, 3 pounds, $1; 10, $3 chewing and smoking, 10 $2.50; regular smoking, 10, $1.50. Satisfaction guaranteed. PRODUCERS DISTRIBUTORS, Murray, Ky

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MAMMOTH BRONZE—"Gold Nugget" prize strain, 5 breeding hens. Giant Gobbler, $50.00, also March hatched fertile eggs, 2c. Mrs. Nutman, Inglewood, Cal

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PEDIGREED FLEMISH GIANTS—No fancy prices. Mrs. T. Besching, 1578 W. 48th St., Los Angeles, Cal

AMERICAN BLUES, 2 to 3 months, $5 per trio. GARNET HUTCHES, 3461 Garnet St. Los Angeles

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RABBITS, all breeds. We specialize in American Spots and Blues. We aim to please. Box 131, Palms, Cal

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CHICKS EVERY WEEK—From good layers. Fall broilers pay. Pullets make good layers. R. I. Reds, Barred Rocks, White Leghorns. Safe arrival guaranteed. Write for circular. Stubbs Poultry Ranch & Hatchery, P. O. Box 67, Palo Alto, Calif

WARD'S SINGLE COMB REDS

Win at the 1920 State Fair. 4 firsts, 2 seconds, 1 third, 11 specials. Reds largest class in shows. Hatching eggs, cockerels and hens. WARD'S POULTRY FARM, 39-B South Lincoln ave., San Jose, Cal.

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**Orange County Hatchery**
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### PULLETS

All kinds of pullets. Write for prices. Baby chicks, turkeys, ducklings, every day. Complete line of supplies. EVERYTHING IN HAIR, FUR AND FEATHERS.

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540 S. Main St. Los Angeles, Cal.

MISSION FALL CHICKS HATCHERY.-White Leghorns, our superior laying strain, means early maturity and heavy laying; hatched right; priced reasonable; any quantity. Also trapnested Brown Leghorns that are winners. R. I. Reds, Barred and White Rocks. Black Minorcas. Prices run from 14c to 18c, depending on breed and quantity. Safe delivery, parcel post or express. Write for circular at once as fall supply will soon be booked up. MISSION HATCHERY, Box 7, Campbell, California.

S. C. WHITE Leghorn baby chicks. From trapnested Tancred and Tom Barron roosters. Their mothers have an egg record of close to 300 per year. We guarantee safe arrival and full count. 15 years shippers of baby chicks. Literature and prices on request. Booking orders NOW for FALL of 1921 and SPRING of 1922. HICKS ELECTRIC JUBILEE HATCHERY, Petaluma, Cal. Route 2, Box 22.

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PETALUMA HATCHERY, established 1902 by L. W. Clark. Chicks every Monday and Thursday. White and Brown Leghorns from heavy laying free range stock. We positively guarantee safe arrival and full count of good, strong chicks and no questions asked. Send for prices and terms. L. W. CLARK, Petaluma, Cal., Box 155.

BARRED PLYMOUTH ROCKS—"Nothing better in poultry." Wonderful layers. Hens and pullets for sale; also choice cockerels that will improve your flock. Now booking orders. Have made a specialty of Barred Rocks for over twenty years; "that's why" our birds win at all leading shows. Catalog free. Vodden's Rockery, Los Gatos, Cal.

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WHITE LEGHORN BABY CHICKS from heaviest laying (Hoganized) stock. Safe delivery live, vigorous chicks guaranteed. No money in advance, pay on delivery. Prices on request. Established 1898.
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COCKERELS, White Leghorns, from 240 to 288-egg hens, mated to 250 and 280-egg cockerels. Bred for 18 years for vigor, heavy laying. Trapnested and Hoganized: Ferrane and Barron strain. A. Worel, R. D. 3, Napa, Calif.

BUFF Leghorns, the best fowl for the farmer or the commercial egg farmer. Beautiful buffs that shell out eggs and win. Some fine stock now ready. O. [illegible]RD, Altadena, Cal.

[illegible]ADERO Poultry Farms, owned by [illegible] Corp. S. C. White Leghorns, [illegible] Island Reds, baby chicks. [illegible] Apt. Atascadero, Cal.

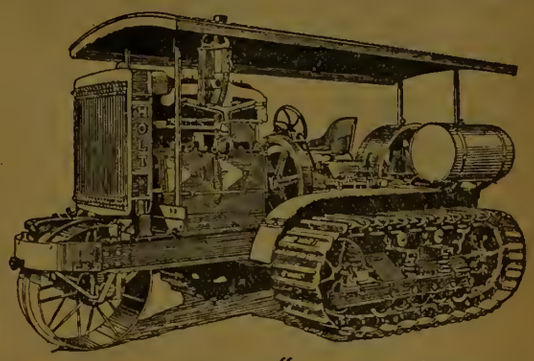
[illegible] Lay" Barred Rocks. [illegible]RCH-APRIL PUL[illegible] Farm, Fairmead.

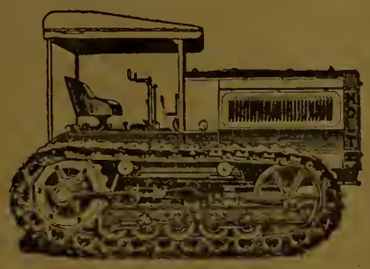
# The entire NEW line of "CATERPILLAR" TRACTORS

## will be exhibited for the first time in the Holt display at the California State Fair Sept. 3 to 11, including—

**The NEW "Caterpillar" 75 Tractor**

now offered for the first time to those who want BIG POWER, combined with a degree of dependability, economy and long life never before reached.



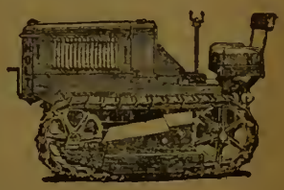


**The Western 10-Ton "Caterpillar" Tractor**

(shown at the left) 60-belt and 38-drawbar horsepower. This model was first announced only a few months ago, and is another important contribution to better, cheaper farming.

**The NEW Little T35 "Caterpillar" Tractor**

(shown at the right) now announced and shown for the first time—the supreme small tractor, with every feature of Holt dependability, long life, power and economy compacted into extremely small size. This newest development of Holt unequaled experience will prove to be the tractor sensation of the decade.



The Holt exhibit will also include "Caterpillar" Disc and Moldboard Plows, Subsoilers, Land Levelers, Stationary Power Units and Combined Harvesters, also "Caterpillar" 45 and 5-Ton Tractors.

The new machines in the "Caterpillar" line are offered at pre-war prices conforming with the price reductions recently announced.

**Don't miss the exhibit at the State Fair. This offers the first and best opportunity to see these newest achievements of the world-famous "Caterpillar" line**

**The Holt Manufacturing Company**
*Stockton ~ California*
*Los Angeles ~ ~ San Francisco*


# The Magic Formula

(Continued from Page 25)

prayer of gratitude that she had come. And she prayed also for the safety of the young man who had set forth so keenly upon his dangerous mission. Towards morning she fell into a fitful slumber.

It was nearly nine o'clock when finally Dorris awoke. Dazedly, she recalled the amazing experiences of the previous night. Dressing in haste, she ran down to the little office that passed for a "lobby." The clerk handed her a note.

"Dorris dear," she read, "We caught the men and they are in jail. I have gone to get a little sleep. I was all in. The car is in the garage next door. Will call for you for lunch."—Bob.

She pressed the hastily-written scrawl to her lips, and with singing heart, hurried forth to the home of her friend, where Robert had sought her the day of his arrival. "My dear," she cried, hugging the amazed young woman ecstatically. "Have you a little afternoon dress I could borrow?"

AGAIN the Rector sat in his quiet study, this time oblivious even to the chiming of his ancient clock. This time there was no fire upon the hearth, for the windows were thrown wide to the sweet breath of a perfect June night. The Great Dane poked his moist nose into his master's hand, and was rewarded with an absent stroking of his massive head. The minister held a large envelope. For the third time he withdrew the letter it contained. A bank check fluttered unheeded to the floor. He held the sheet in the glow of the shaded table-lamp and read:

Dear Old Reck:-

You have done a lot for me, but tonight you did the greatest thing of all. I want to say you are a brick and deserve the best of everything. That is why I didn't even resent your kissing the bride, you old rascal. Yes, you deserved that, too.

You brought me to my senses that night not so very long ago. You showed me how selfish I had been. Perhaps that is why your "text" proved to be a cure for all my troubles.

First of all, it explained the peculiar force that brought me back to my old home town.

Then, it opened the way for business success.

More than that—it enabled me to track down the hirelings of the gang that tried to injure my firm, and through them to expose the real leaders.

But, best of all, it brought right into my arms the most wonderful girl in all the world.

She is almost ready to go with me now. Soon we shall be speeding away together, my dear little wife and I. But we are coming back, Reck—back to the old town, with all its memories—and you. For I have learned that you were right when you wrote for me your magic formula—

"EVERYBODY'S HOMESICK, ALL THE WORLD IS KIN."

**Buy a pipe—and some P. A.**
**Get the joy that's due you!**

We print it right here that if you don't know the "feel" and the friendship of a joy'us jimmy pipe —GO GET ONE! And—get some Prince Albert and bang a howdy-do on the big smoke-gong!

For Prince Albert's quality—flavor—coolness—fragrance — is in a class of its own! You never tasted such tobacco! Why—figure out what it alone means to your tongue and temper when we tell you that Prince Albert can't bite, can't parch! Our exclusive patented process fixes that!

Prince Albert is a revelation in a makin's cigarette! It rolls easily and stays put because it's crimp cut! Oh, go on! Get the papers or a pipe—and some P. A.!

*Prince Albert is sold in tappy red bags, tidy red tins, handsome poand and half pound tin humidars and in the pound crystal glass humidar with spange maistener top.*

Copyright 1921 by R. J. Reynolds Tobacco Co. Winston-Salem, N. C.

**PRINCE ALBERT**
*the national joy smoke*



*recommended*
**BY LUBRICATION**
*Experts*

STANDARD OIL COMPANY
(CALIFORNIA)

*A grade for each type of engine*


# Tie the Orchard to the Cow

(Continued from Page 8)

one of the most successful growers I know. His orchard is not one that the county chamber of commerce shows to prospective settlers who come out from the East, for it is not mulched and smooth like the new lawn plot before the grass comes up in spring. In fact, it looks ragged and unkempt, for it is on old alfalfa field as well as an orchard.

### ALFALFA VS. CLEAN CULTURE

"I planted that alfalfa 20 years ago," this orchardist told me. "And I did it for the sake of my trees; not because I wanted to work the soil for all it could give. I had followed the clean-culture method, which still is fashionable, for many seasons. I used to keep the floor of my orchard so smooth you could trace a jackrabbit across it by his tracks. But pretty soon it would not work up that way. The soil was no longer friable and, try as I would, I could not smash the clods. I reached the end of my patience when it became so rough an elephant could have trotted through the orchard without leaving a trail. I concluded the humus had been burned out of that soil by constant clean culture and exposure of new soil to the summer sun. The yield of my pear and almond trees dropped off. Then, in desperation, I determined to plant a permanent cover crop to see what it would do. I could not lose, as the orchard already had become useful only as a decoration.

"So I planted alfalfa and at first planned to cut it regularly and let it lie on the ground and rot. But it occured to me that I might get something from this land by feeding alfalfa to cows and then compensating the soil by spreading manure. So I bought a few registered Guernsey cows and became a dairyman as well as an orchardist."

"What was the effect on the trees?" I asked.

### TREES "CAME BACK"

"They began to come back the second season," he replied. "And by the third they again had crossed to the profit side of the ledger. I liked the plan so well that the alfalfa has been in for 20 years and now that orchard is producing better than ever. No one ever will get me to go back to clean culture. It is not safe."

This man today is reckoned as much a breeder of registered livestock as an orchardist and he has made a success of both, in combination.

"I plowed up one patch of alfalfa after it had been in 20 years," he told me, "and the character of the soil had changed entirely. Where it formerly had been refractory and hard to work it is now friable—almost like a garden patch that has been well manured."

Another "combination" orchardist is E. A. Gammon, ex-president of the Sacramento County Farm Bureau and a pear grower of the Sacramento River District, who keeps a permanent cover crop in his orchard and gets a yield of pears that is the marvel of his neighbors. Throughout the season, hogs and sheep are pastured in this orchard. Gammon has an abundance of water for irrigation from the river which flows by his door, and a deep, rich soil that will stand a heavy call upon its fertility. His pear trees are 30 to 35 years old.

### PEARS, SHEEP AND HOGS

I visited Mr. Gammon's orchard when the crop was being harvested. Long limbs bent far over under the load and the foreman estimated that one tree would yield 40 boxes of fruit—50 pounds to a box. It was not hard to believe on seeing the mass that hung there. Under the trees, the ground was matted with growth, and hogs rooted contentedly in the shade, nosing out a fallen or wormy pear or munching at the roots of the growth. It was a ragged looking sight, the whole orchard, but I am bound to say the trees were thrifty and loaded with fruit.

"I know the place looks as though I am a lazy farmer," said Mr. Gammon with a note of apology. "But I must obey my reason rather than my inclination to decorate the landscape. Clean culture makes a pretty picture, but this livestock-cover crop system produces the fruit and maintains the fertility of the soil. And, besides, there is a real profit from hogs and sheep."

"What is this cover crop?" I asked Mr. Gammon, pointing to what seemed to be a miscellaneous mat.

"Started with vetch and melilotus indica, but we have some weeds, too, now," he replied. "We had a good stand the first year. The orchard was laid out in little basins, something like an alfalfa field, so we could flood it regularly during the growing season. The cover crop was planted in the fall, and early in the spring we had a good stand. Then I turned in 15 brood sows to roam over the 80 acres and keep down the crop. But it was too much for them, so I gave range here also to my flock of pure-bred Hampshire sheep, and you see there is still plenty of feed left."

"Are you not working your soil pretty hard?" I asked.

"No harder than under the clean culture method," Mr. Gammon said. "In fact, I believe this plan is better for the life of the soil. I figure that the manure from the hogs and sheep offsets any loss of fertility that may result from feeding the crop to animals and, if there is any loss there, it is more than compensated by the fact that we don't lose our humus through clean culture. Humus is important in this Western country and it certainly will burn out under clean culture."

"You have saved some expense by not cultivating?" I suggested.

### SAVED AND MADE MONEY

"Yes, and the stock has paid us a profit, too," Mr. Gammon replied. "The first year we saved $987 in cultivation expenses, and labor was a lot cheaper then than it is now. And we cleared $1000 on the hogs the first year. The fifteen sows were bought when they were gilts at a total cost of $187.50—we got them cheap. We slaughtered during the season 15 barrows weighing about 265 pounds each. We used this meat for the help during the harvest, but I have credited the hog account with $562.50 on these. We sold $215 worth of barrows and, at the end of the year, still had $875 worth of pigs.

"Virtually all the feed that went into pork making was cover crop and cull pears from the orchard, though we did give the sows middlings before farrowing time. We plan on doing better in feeding the hogs. They just took care of themselves the first two years.

"Other than the money that went into the 15 gilts, our only outlay was for a hog-tight wire fence around the orchard, and this was a simple affair, for the old fence was nearly hog tight. We threw together some hog houses with lumber picked up about the place.

"Aside from the fertility they leave in the orchard I find that hogs and sheep are a benefit as scavengers. They clean up all the wormy fruit that drops under the trees and help in controlling insect pests.

### EXPERIENCE WITH SHEEP

"If an orchardist does not want to be bothered with hogs," he continued, "I would recommend that he let sheep pasture in his orchard. We have done well with them. Out in this country sheep are raised mostly on range and the rangeman never gets anywhere near a 100 per cent crop of lambs, because his flocks are exposed to bad weather and coyotes. But down in the valleys in the orchards on small farms, one can take care of a flock more easily, and get a big return in lambs. Last year we were able to get 130 per cent lambs. I keep 700 sheep on another farm where I have 322 acres, of which 90 are in alfalfa and 100 are in orchard, planted to a perennial cover crop. Sheep will not bother the trees as long as there is plenty of feed for them between the rows. And they are easy to handle. About the only time they require attention is when there is a lull in orchard work."

The best way to relieve the manure famine in the specialty orchard [illegible] whether citrus or deciduous is to put the manure factory right in the orchard. Many have tried it—and seen

## Partners With Bees

(Continued from Page 25)

[illegible] it is unlikely that as good [illegible] will be received. At any rate, wherever bees are obtained, be sure to ask your county bee inspector to examine them and satisfy yourself that they are free from disease. His advice always may be relied upon.

### ON SMALLER SCALE

In case you do not care to go to the expense of purchasing a full colony of bees, a three-frame nucleus may be had. This consists of three frames of brood and honey, with bees and queen. It is necessary to complete the hive with frames, each containing a full sheet of foundation wired in. It will be found very interesting and instructive to watch these bees gradually build up into a strong colony, which they will do the first year if purchased reasonably early. They cannot be expected, however, to produce nearly as much surplus honey the first year as a full colony, but probably they will gather sufficient to pay for themselves and still have ample to winter on. They will be unlikely to swarm until early the following year.

### HOW TO OPEN AND EXAMINE HIVE

Blow two or three good puffs of smoke into the entrance, wait about thirty seconds for this to take effect, insert the hive tool under the cover and raise it about a quarter of an inch; blow in a little smoke through the opening thus made, then remove cover gently and place on the ground with under part of cover upwards to avoid crushing any bees that may adhere to it.

If there is a super on the hive, raise and remove this in the same way, using a little more smoke between bottom of super and top of hive. The bees probably will show no inclination to fly, but if they do, again apply the smoker, but never to excess, always remembering that the less smoke used the better.

The second comb from either side of the hive generally is the easiest to remove. Crowd the combs from this one towards the center of the hive by using the hive tool as a lever. There is no danger of forcing them close enough together to crush bees, as the patented ends of the frames will prevent this.

### CARE AND PATIENCE REQUIRED

Now loosen this comb from the end one and carefully lift out by the shoulders, holding it fast. Do not drop it. The cells of this frame probably will contain eggs, brood in all stages, honey and pollen, or "bee bread."

Your attention probably will be first attracted by the white cappings of the cells which contain honey. A little lower in the frame will be noticed the darker cappings of the cells containing capped pupae, side by side with pearly white larvae in various stages of development.

After examination rest this frame on end by the side of the hive. The other combs now can be lifted out, examined and replaced in the hive in turn. Always replace frames as you found them, unless for any reason you require them otherwise. Do not breathe directly into the hive. Make all your movements slowly and deliberately; avoid anything approaching jerkiness.

Replace the cover by sliding it into position; this will brush off any bees still on it and also any on the top of the sides of the hive. The examination of a colony, often looked upon by a beginner as difficult and dangerous, is one of the easiest of the many operations connected with beekeeping.

### DEVELOPMENT OF INSECTS

There are three stages in the development of the insect. These are [illegible], larva or grub, and pupae or chrysalis. The egg is laid by the queen in the bottom of the cell, hatches on the third day, is, in the case of worker [illegible] sealed up on the sixth day, and emerges a perfect insect on the twenty-[illegible] day from the time the egg was laid. Queens mature on the fifteenth day and drones on the twenty-sixth.

---

[illegible] articles Mr. Dickenson will [illegible] by [illegible] all the various factors [illegible] honey production. It is [illegible] that the rest of readers preserve [illegible] these papers. The first [illegible] number.—Editor.)

# Before
## *the rains start again*

Examine your shingle roofs. They need protection to successfully come through the heavy rains of another year's weather.

## ORONITE SHINGLE OIL
### *Preserves Shingles*

Oronite Shingle Oil is a high-quality preservative for all shingles (either on roofs or on side walls)—to make shingles last longer through drenching rains, whipping winds and hot, drying sunshine.

Oronite Shingle Oil penetrates the fibre of the shingle with a moisture-resisting preservative that retards the evaporation of natural oils in the wood—the cause of cracking and warping—and counteracts the effect of age and exposure.

Oronite Shingle Oil is especially prepared to make shingles withstand continual exposure. It will keep your roof in good condition and give it longer life. An application of Oronite Shingle Oil to an old roof *now* may save the cost of repairs or an entire new roof next season.

You can mix Oronite Shingle Oil with colors and obtain an attractive stain and all the advantages of this shingle preservative. Ask our nearest agent for color formulas.

STANDARD OIL COMPANY
(California)

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especially prepared for use on the farm.

*Oronite Roof Paint*

A high-quality protective coating for prepared roofing and metal roofs.

*Mica Axle Grease*

Gives a durable, smooth lubricating film under every pulling condition. Keeps the axle cool; no hot-boxes, no gumming. The MICA makes it better.

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Preserves the original strength and life of leather and keeps it soft and pliable. Keeps harness "new looking."

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Correct Lubrication for your Hand Separator, under the conditions of high speed and close fitting parts.

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It is the most effectual Blood Purifier, Nerve Restorer and system builder known. It takes effect instantly. Induces perfect digestion and thorough assimilation of the food. Stimulates the torpid liver and kidneys. Assists the action of the bowels and eliminates all impurities from the blood, thus affording a positive relief for constipation. It nourishes and invigorates the entire system.

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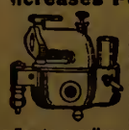

Amazing auto invention. Wonderful new carburetor. Guaranteed to reduce gasoline bills from one-half to one-third and increase power of any motor from 30 to 50 per cent.

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Fits any make of car. Put on in a few minutes. Fords make as high as 40 miles to a gallon of gasoline. Other cars show proportionate increase. Take advantage of our special 30-day trial offer. Name your car. AGENTS WANTED

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One Man One Team

Have water on your own farm. In spare time make wells for your neighbors. It means $1000 extra in ordinary years, double that in dry years. No risk—no experience needed.

**Outfits for Getting Water Anywhere**

Earth augers, rock drills and combined machines. Engine or horse power. *Write for easy terms and free catalog.*

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**WYANT'S EYE-BRIGHT** MAKES ANIMALS VALUABLE AGAIN

Painless eye treatment for horses, cattle and other animals. For cataract, moon-blindness, inflammation, sore and running eyes. Easy to use. Removes the scum following injury or inflammation. Cleans and brightens. Ask your druggist or will mail direct. $1.50 E. M. WYANT, Sifter.
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## Direct-Connected Pump and Motor

All the water you want at small cost if you have one of these Bean Direct-connected Outfits at work. The Bean Water-sealed Stuffing Box prevents loss of priming, reduces friction, and increases efficiency. Mail the coupon.

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Send me your new Pump Catalog.
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No. 1—Small Fruit Press
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All frames and tubs made of hardwood. Semi-steel castings. Write for prices and description.

DIXON & GRISWOLD
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We have just reduced the price of our tractor to close out the stock we have on hand of this model.

Write for Prices

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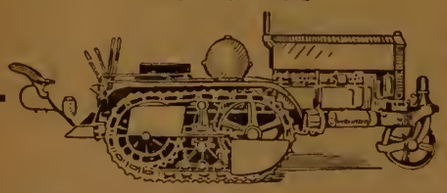

Model D

UNION TOOL COMPANY, TORRANCE, CAL.



## Oh, You Skinny!

Why stay thin as a rail? You don't have to! And you don't have to go through life with a chest that the tailor gives you; with legs you can hardly stand on. And what about that stomach that flinches every time you try a square meal? Are you a pill-feeder?

Do you expect Health and Strength in tablet form—through pills, potions and other exploited piffle? You can't do it—it can't be done.

The only way to be well is to build up your body—all of it, through Nature's methods—not by pampering the stomach. It is not fate that is making you a failure; It's that poor emaciated body of yours; your half-sickness shows plain in your face, and the world loves healthy people. So be HEALTHY — STRONG — VITAL. That's living. Mention the ailments upon which you wish Special Information and send with a 10c piece (one dime) to help pay postage on my Special Talk on Thinness and my book, "Promotion and Conservation of Health, Strength and Mental Energy." Don't put it off—send for my free book Right Now.

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## WILL RADIUM AT LAST OPEN THE DOORS OF THE GREAT UNKNOWN

If you are sick and want to Get Well and Keep Well, write for literature that tells How and Why this almost unknown and wonderful new element brings relief to so many sufferers from Constipation, Rheumatism, Sciatica, Gout, Neuritis, Neuralgia, Nervous Prostration, High Blood Pressure and diseases of the Stomach, Heart, Lungs, Liver, Kidneys and other ailments. You wear Degnen's Radio-Active Solar Pad day and night, receiving the Radio-Active Rays continuously into your system, causing a healthy circulation, overcoming sluggishness, throwing off impurities and restoring the tissues and nerves to a normal condition—and the next thing you know you are getting well.

Sold on a test proposition. You are thoroughly satisfied it is helping you before the appliance is yours. Nothing to do but wear it. No trouble or expense, and the most wonderful fact about the appliance is that it is sold so reasonable that it is within the reach of all, both rich and poor.

No matter how bad your ailment, or how long standing, we will be pleased to have you try it at our risk. For full information write today—not tomorrow. Radium Appliance Co., 663 Bradbury Bldg., Los Angeles, Calif.



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AMERICAN AUTOMOBILE DIGEST, 606 Butler Bldg., Cincinnati, Ohio.


# Sunflowers

### POET'S TRIBULATIONS

*The editor returned my verse*
*With comment sharp and caustic.*
*"Just an escape of gas," he wrote—*
*The unfeeling agnostic.*
*How crude the editor's abuse—*
*The low, ungrateful cheater.*
*If he doesn't find such gas of use,*
*I'll simply change the meter.*
—Justin Nutt

### The More the Noisier

"The verra best music I effer heard whateffer was doun at Jamie MacLaughlan's," said the piper. "There wass fifteen o' us pipers in the wee back parlor, all playin' different chunes. I thocht I was floatin' in heevin."

### GREAT PASTIME

*"Hunting snipe," like other things,*
*Of pleasure has no lack,*
*For him who does the laughing*
*While another holds the sack.*
—Justin Nutt

### Prayers and Pugilism

First Small Brother—"An' please bless Willie, an' make 'im less quarrelsome. Amen."

Second Small Brother—"Say! You start knockin' me to God an' I'll paste ye in the eye!"—Life.

### The Wrong Tree

The City Cousin—Wonderful old oak, I wonder what you would say if you could speak to me.

Young Bobby Holstein—Huh! I guess he'd probably say, "Have a heart, lady! I ain't a oak—I'm a beech."

### Wrong Implement

Champion Pie Eater (to dentist)—Say, there's something the matter with that filling you put in my back tooth last week. Every time I hit it with my knife it pains me.

### A Predicament

"Mrs. Einstein, Mrs. Einstein, come qvick! I've lost my ruby ring!"

"Have you looked in every room, Mrs. Cohen?"

"Yes—all but the front bedroom."

"Vell, vy don't you make a search by the front bedroom?"

"Because, if it ain't there I'll drop dead."

### The Krazy Kafeteria

"Give me a combination salad without any dressing."

"Yes, sir. What kind of dressing do you wan't it without?"

"Without mayonnaise."

"Sorry, sir. We haven't any mayonnaise. You'll have to have it without French dressing."

Indignant Lady (to park attendant)—Who are you to interfere with us? Attendant—Pardon me, madam, I only wanted to put this wet-paint notice on your bench.

### THE QUIET COUNTRY

I HATE the city's din and noise, its raucous roar and rattle. It makes us lose our graceful poise and mill around like cattle. I dreamed of peaceful country lanes, where all was calm and quiet, without a sound of cabs and trains—I thought I'd like to try it. And so I left the town behind, where noisy bells were ringing, and went in search of peace of mind, where little birds were singing. I went to bed that night at nine, far from the clanging city. I knew I'd wake in feeling fine, but, listen—what a pity! No, not a sound disturbed my rest except a rooster crowing, a barking dog—the little pest!, the wind in tree-tops blowing; two tom-cats' yowls and growlings deep, a rusty windmill's rattle; the bleating of a lonesome sheep, the bawling of some cattle. Just as the day began to break the hired man got busy—more noise, I vow, that man could make than any old tin Lizzie. The morning chorus then began with hungry horses neighing; the cook beat loudly on a pan, while donkeys all were braying. My beauty sleep! O where was it? I heard the roosters crowing. I thought 'twas time that I should get up. I said I must be going, back to the gilded city new, where people all are elsewhere, where the beasts are kept within a zoo and worry but their keepers.
—O. H. BARNHILL.

## Raising Reindeer in Alaska

(Continued from Page 15)

milk breed, able to withstand the rigors of the colder sections.

AN ALASKA DAIRY

(About ten miles from Juneau a commercial dairy has been maintained by Thomas Knudson, a photograph of his herd resembling a scene on almost any Western valley ranch, with timbered mountains in the background and a clear stream flowing through the fields.—Ed.)

The development of these and other amazing potential resources, Alaskans seem to agree, depends largely upon the opening of the Territory to private enterprise and the removal of some of the Government restrictions and reservations. In a forthcoming article will be discussed other interesting agricultural developments, with more striking photographs, illustrative of the great productivity and scenic grandeur of "The Land of the Midnight Sun."

*Reindeer Herd on the Yukon River*

# CAROB PLANTATIONS

The Scientific Cultivation of Carob is one of the greatest Horticultural assets of Southern California.

Southern California's semi-arid districts are the natural habitat of the Carob tree and cultivation cost is reduced to a minimum.

**Carob Trees Require**

**NO IRRIGATION**

**NO PRUNING** **NO FERTILIZATION**

**NO SPRAYING** **NO FUMIGATING**

Ordinary dry farming methods are all that is required to produce a maximum crop.

Carob trees are most prolific producers.

An investment in a Carob plantation gives better assurance of a permanent income than any other crop planted in California or elsewhere.

For information and reservation of land address:

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**Country Sales Agent for F. D. Cornell Company**

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# FRESNO DISTRICT FAIR

## EVENT of the YEAR

## in the San Joaquin Valley

# 6 BIG DAYS

## Sept. 26 to Oct. 1

Last year 120,000 persons attended the Fresno District Fair.

This year, with prizes increased in every department and many new classes added, the attendance will exceed 200,000.

Prize list totals $15,000.

Write at once for premium list to:

**Chamber of Commerce,**

**Fresno, California.**

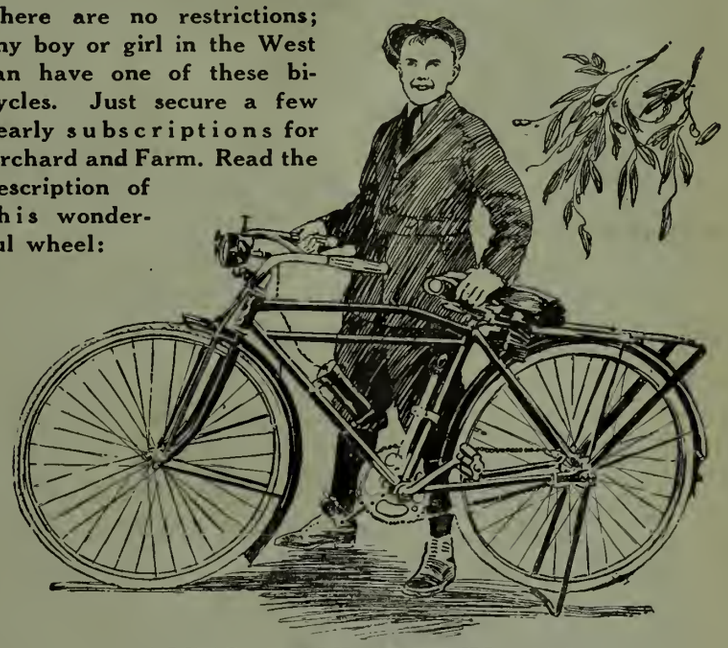
# BOYS AND GIRLS

## GET ONE OF THESE FAMOUS

# EXCELSIOR BICYCLES

# FREE

**There are no restrictions; any boy or girl in the West can have one of these bicycles. Just secure a few yearly subscriptions for Orchard and Farm. Read the description of this wonderful wheel:**



## AUTO BIKE MODEL 400

The manufacturers of the Excelsior are pioneers in the designing and production of bicycles of the "Motor Bike" type, building not merely a bicycle that looked like a motorcycle, but a bicycle in which is embodied such features of motorcycle design and equipment as are of real practical service.

Model 400 is a bicycle of highest quality throughout, especially designed and built for hard road service.

The frame, of motorcycle pattern, is especially reinforced to give the greatest possible strength, without excessive weight.

The fork is the truss type, similar to that used in many motorcycles.

The handle bar is handsome in design and powerful in construction, the cross brace adding to both appearance and strength.

The stand is the armless type, strong, durable and quick acting.

The handle bar grips and pedals are exactly the same as used on many standard makes of motorcycles.

While it must not be understood that this is an exceptionally heavy bicycle, it is built for extra heavy service, and is, we fully believe, the strongest, most durable, and at the same time one of the lightest running bicycles that was ever built.

## "The Bicycle With a National Reputation" and a Five Year Guarantee

**No Delay—You Get Bicycle as Soon as Subscriptions Are Secured—Mail the Coupon Below Today**

## GIRLS—

**Don't let the boys get away with all these bicycles. Remember that the beautiful Excelsior, in a special model for girls, is also offered.**

ORCHARD AND FARM, Los Angeles, Cal.
Bicycle Department:
Send me instructions for securing a $65.00 Excelsior Bicycle without paying any money.

Name .....
(Write name in full)

Address .....

City ..... State .....

Age..... Parents' Name.....

# Breakfast Breads
## THAT ENLIVEN THE MORNING MEAL

MUFFINS, waffles, popovers, griddle cakes, piping hot biscuits—how they enliven the morning meal! Experience has shown that the most simple and efficient way of putting a batter together is to mix and sift the dry ingredients first, then mix the liquid and the well-beaten yolks of eggs, and combine mixtures. If using shortening add melted, and at the last fold in the stiffly-beaten whites of eggs.

Eggs should always be beaten separately when lightness is desired, but if time is limited it will be all right to beat the eggs together.

For waffles the iron should be well heated and brushed on both sides with melted shortening. For griddle cakes the griddle should be heated, and if not soapstone or aluminum, greased. Drop batter by spoonfuls and, when puffed and full of bubbles and cooked on the edges, it should be turned and browned on the other side. Never turn griddle cakes but once, otherwise they will be heavy. Have muffin pans hot and greased well.

Heavy pans will give much better results than tin. Fill the pans only two-thirds full, and if any are left unfilled they should be filled with water to prevent burning. Muffins and corn breads need a moderately quick oven and should bake about twenty-five minutes.

To determine the heat of the oven, an oven thermometer will be found most convenient, and will prove a preventive of many failures. Or, try this: Place a piece of white paper in the heated oven and close the door. If in three minutes the paper turns a golden brown the oven is moderately hot.

BELLE DE GRAF
*Director Sperry. Domestic Science Dept., who stands sponsor for the following Sperry Standard Recipes:*

### Sperry Muffins

2 cups Sperry Drifted Snow Flour, 4 teaspoons of baking powder, 1 teaspoon salt, 2 tablespoons sugar, 1 egg, beaten, 1 cup milk, 2 tablespoons shortening.

Sift dry ingredients; beat egg well; add milk and dry materials, gradually beating to a smooth batter; add melted shortening last. Bake in heated, well greased muffin pans in a hot oven.

### Sperry Drifted Snow Waffles

1 cup Sperry Drifted Snow Flour, 2 teaspoons baking powder, ½ teaspoon salt, 1 egg, 1 cup milk, 1 tablespoon melted butter.

Mix and sift the dry ingredients; beat yolks of eggs, add milk and combine mixtures. Add shortening, fold in the stiffly beaten whites of eggs. Bake at once on a greased, hot waffle iron.

### Sperry Popovers

1 cup milk, 1 cup Sperry Drifted Snow Flour, ½ teaspoon salt, 2 eggs, 1 teaspoon melted butter.

Add Sperry Drifted Snow Flour and salt to milk and beat well with an egg beater. Then add one unbeaten egg at a time, beating thoroughly. Add melted shortening. Have iron muffin pans or custard cups very hot, grease well, pour in popover batter and bake in a medium hot oven about forty minutes.

**SPERRY DRIFTED SNOW FLOUR**
"A Sperry Product"

# ORCHARD and FARM

OCTOBER, 1921

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Offices: Los Angeles and San Francisco

TEN CENTS

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# BOYS AND GIRLS

## GET ONE OF THESE FAMOUS

# EXCELSIOR BICYCLES

# FREE

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## "The Bicycle With a National Reputation" and a Five Year Guarantee

### SPECIFICATIONS

**Frame**—Motorcycle type with gracefully curved top tube, in which there are no kinks or short bends. Made throughout of 18-gauge Shelby seamless steel tubing. All connections heavily reinforced in accordance with motorcycle construction. Main frame tubes one inch in diameter. Heavy motorcycle type head fittings. Pinchbolt seat post cluster with nickeled bolt, nut and cap washer.
**Fork**—Trussed motorcycle type. Special drop forged crown 18 gauge fork sides. Extra heavy one-inch head stem with flush cap lock nut. Head fittings, outside cups and cones with ball retainers for 3-16 inch balls.
**Seat Post**—Extra heavy forged top, rear L heavily nickeled.
**Wheels**—Rims fancy enameled, fitted with any standard make of front hub with coaster brake to match. Perfection anti-rust spokes 36 front and rear.
**Chain**—Diamond No. 71 roller, 3-16x1 inch pitch.
**Hanger**—Excelsior one piece, specially designed for heavy work, with large cups, cones and balls. Accurate and positive adjustment. Seven-inch cranks of Diamond shape. Choice of coaster brakes.
**Sprockets**—Front 26, rear 10 tooth, 3-16x1 inch pitch.
**Mud Guards**—Dropside, wide and heavy, with front extension, double flat steel braces, front and rear, carefully polished and heavily nickeled with leather splasher on front guard.
**Tires**—Firestone non-skid single tube 28-1½ (fully guaranteed) with option of U. S. Chain Tread single tube.
**Saddle**—No. 2 Troxel Motor Bike.
**Handle Bars**—Shelby Motor Bike braced bar, motorcycle type, with cross brace made from extra heavy Shelby seamless tubing. Rubber motorcycle type grips.
**Pedals**—Standard motorcycle type.
**Stand**—De Luxe folding.
**Finish**—Frame and fork handsomely and heavily enameled blue with white head, seat post cluster and center bar. All main tubes pointed and striped.
**Optional Colors**—Carmine and white, black and green or military drab. All metal parts carefully polished and nickel plated.
Black enameled Carrier Rack and leather tool bag containing all necessary tools.

## No Delay—You Get Bicycle as Soon as Subscriptions Are Secured

## MAIL THE COUPON BELOW TODAY

## GIRLS—

**Don't let the boys get away with all these bicycles. Remember that the beautiful Excelsior, in a special model for girls, is also offered.**

ORCHARD AND FARM, Los Angeles, Cal.
Bicycle Department:

Send me instructions for securing a $65.00 Excelsior Bicycle without paying any money.

Name .....
(Write name in full)

Address .....

City ..... State .....

Age ..... Parents' Names .....

OUR EDITORIAL POLICY

ORCHARD and FARM is a magazine of, by and for agricultural people. We believe that to the tiller of the soil is due the best that life affords. We believe that he is the bulwark of the Nation. We honor him as the basic producer. His problems are our problems; his triumphs, our triumphs, his joys and sorrows, ours. To record his achievements and expose the duplicity of his enemies; to fight for and with him; to give him genuine help and practical information; to assist, entertain and inspire every member of his happy household—that is the policy of ORCHARD and FARM.

# ORCHARD and FARM

ESTABLISHED 1888

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OCTOBER DAYS

October days—calm and serene—
The happy time of in-between.
With torrid summer gone at last,
And skies yet seldom overcast.

Now youth exults in buoyant zest—
And age reflects. Both love you best.
So hail October, month of cheer!
Sometimes we wish you'd last a year!

—Jason Wells.

## Pithy Paragraphs

It doesn't pay to run away from trouble. Even the dog that flees fights usually fights fleas.

Horrors of Eugenics—A manly man married a womanly woman and all their children were childish!

One type of HIGHWAY ROBBER is the rent-free boulevard merchant who hauls his produce from the city and sells it to passing motorists as "home grown."

"I find it much easier to forgive my enemies," remarked Uncle Wiseacre recently, "after I have given them a good licking."

It is easier to follow than to lead, which may explain why so many FOLLOW the fast life instead of LEADING the simple one.

More business, more money; more money, more business. Let's all get busy and make more money by making more business.

Contentment is simply appreciation of little things—the perfect autumn day, the friendly hand-clasp, the task well done, the well-told story, the music of the kiddies' laughter, the good food, the restful bed. To sense and be thankful for the every-day blessings that so often we do not see until they are taken from us—that is true contentment.

Jas. C. Kyllin
Editor

### YOUR QUESTIONS WANTED

On Page 13 of this number appears an article on the railroad situation and also a paid advertisement, one of a series submitted by the Association of Railway Executives. Subscribers are urged to give thought to the transportation problem and to submit at once to the editor any questions they should like to have answered by the officials of our Western roads. These questions, with the answers, will be published. See Page 13.

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Shoemakers' children frequently go barefoot and rare is the tailor who is always well-groomed. Many carpenters live in poorly-constructed houses and the producers of food are heavy buyers of canned goods. But the individual soon establishes his standing by his utterances, and the business concern by its printed announcements. Survey mentally the various manufacturers, distributers and dealers whose wares are familiar to you, and you will find that your impression of them has been gained largely through their advertising.

This is well, for he who believes in, and is enthusiastic about his product must have a real basis for this belief, and takes pride in telling about it.

Protect yourself by buying advertised goods. And make use of ORCHARD and FARM'S advertising service by referring to the convenient alphabetical list below, whenever you require anything for ranch or home. The answers to the questions will be found in the advertising columns of the pages listed opposite.

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## Between Ourselves

"Hubam" clover! What will it mean to California? This interesting question will be answered soon through ORCHARD and FARM by a practical investigator who has made a special study of sweet clover varieties. "Hubam" has attracted nation-wide attention. Will it "take" in California? Watch for this feature.

Dehydration is less in the limelight now, perhaps, than during the war. Yet the greatest strides in this wonderful science have been made during the past two years. Our own university has taken the lead in research work and through Prof. Arthur W. Christie, ORCHARD and FARM is presenting the latest discoveries and facts. Read "Dehydration of Grapes" this month. No subject is more important to California producers today than dehydration.

What to do in the flower garden is explained each month by Helen R. Temple, a farm wife and mother who loves and knows flowers and who writes from the practical viewpoint. Mrs. Temple's helpful flower garden articles appear exclusively in ORCHARD and FARM. Are you makng the most of them?

O. H. Barnhill, contributing editor, has written another one of his interesting "real stories about real people," which we shall publish soon. It tells of the remarkable career of an immigrant boy from Holland who has become one of California's most successful farmers.

Has your banker refused to finance the purchase of that new tractor? Walter H. Gardner this month gives some pointers that may help in winning him over. Gardner's power farming articles are refreshingly "different." You will enjoy and appreciate "Is Your Banker Tractor Wise?" Page 22.

### THE "GREEN" HAND

*The Boss—"Hey, there! For the luvva Mike! What do you mean by cutting up that new harness?"*

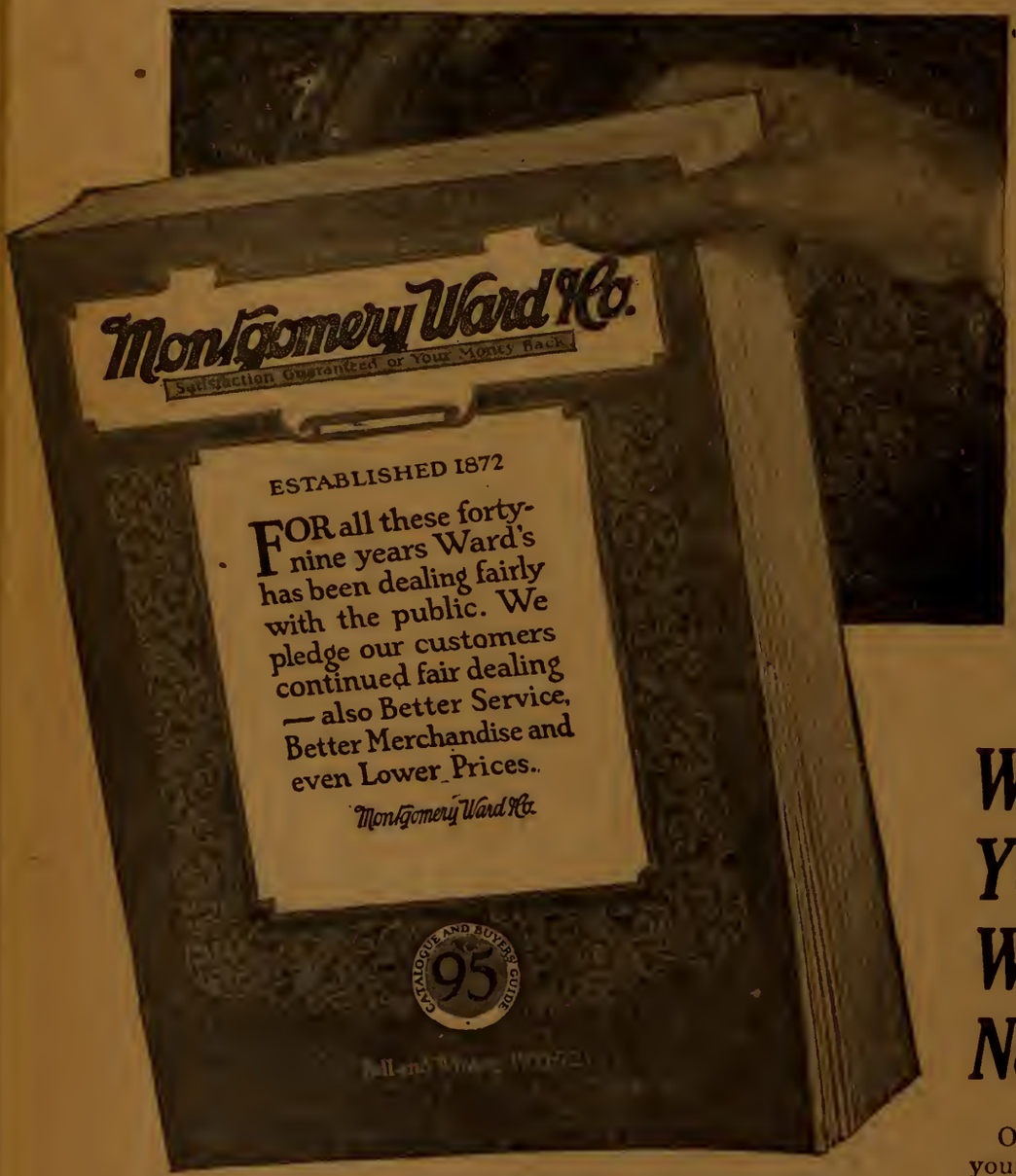
*His Nibs (innocently)—"Why, I asked the foreman how to hitch this small team and he said to shorten the tugs."*

But there's really only one way to make the harness fit the horse and that's the right way. Similarly, there's only one way to make the farm journal fit modern conditions and that is by suiting it to the needs of the business farmer of today. That's what the publishers of ORCHARD and FARM are trying to do. If its personality appeals to you, tell your friends—(and, of course, we'll be glad to hear it, too). Hundreds of good things are in store. The Editor suggests that you note the expiration date upon the label of your copy and send in your dollar for renewal in advance so as not to miss a single number. Subscriptions so renewed are extended from date of expiration.

### A Creed in Twelve Chapters

(10) Courage.—Go back to the simple life, be contented with simple food, simple measures, simple clothes. Work hard, pray hard, play hard. Work, eat, recreate and sleep. Do it all courageously. Every day of our lives we have a victory to win.—Herbert Hoover.

# Montgomery Ward & Co.




## 30 Million Dollars Worth of Merchandise Bought at the New Low Prices for this Book

THIS new Fall Catalogue is filled with new merchandise bought at the new low prices—and the saving can be yours.

We have been buying, and are now buying for cash, all kinds of reliable merchandise at the lowest prices of the year. And so this big, new book brings to you the lowest prices, the absolutely right prices on everything you buy.

## Write Today for Your FREE Copy of WARD'S Complete New Fall Catalogue

One copy of this big, complete catalogue is yours—FREE. You need only fill in the coupon below, or write us a post card—and your copy will be sent you by mail, free, and without obligation.

This Catalogue in your home gives you a standard for price comparison. It quotes the new prices, the lowest prices on everything needed for the Home, the Farm, and every member of the Family.

No matter what you buy or where you buy, you should first know Ward's price, based on the new low cost of raw materials, the new low costs of production.

Saving money today is a matter of knowing how little you should pay. Write for your copy of this Catalogue and at least learn before you buy, the price to pay.

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Use the index to your Catalogue. You will be surprised to find how completely all your needs can be filled from this big book.

There are the latest New York Fashions for Women, New York Styles selected in New York; everything in Men's and Children's Wear; all your household needs; almost everything you buy at the lowest prices of the year.

## MONTGOMERY WARD & CO.

**Chicago Fort Worth Kansas City St. Paul Portland, Ore.**

To MONTGOMERY WARD & CO., Dept. H- 66
CHICAGO, FORT WORTH, KANSAS CITY, ST. PAUL, PORTLAND, ORE.
(Mail coupon to the house nearest you)

Please mail me my FREE copy of Ward's New Catalogue and Buyers' Guide No. 95.

*Name* .....

*Address* .....

ORCHARD and FARM

VOL. XXXIII. OCTOBER, 1921 NO. 10

# Running Water — How a Country Community Acquired City Conveniences

*INSTEAD of simply wishing, this progressive group of farmers acted—co-operatively. The result was a water system that cost each member little, but gave city comforts without city expense. Now there is plenty of water on tap, but no monthly bills to pay, and everybody's happy.*

By E. D. Roseman

"WE HAVE de-countrified the homes of this community," remarked a prosperous looking farmer not long ago. "We have done away with a common feature of country houses and added a city convenience that we enjoy without the expense which the town dweller pays."

And he told the story of how the Hopewell settlement in Western Oregon, ten miles from the nearest town, has built and operates successfully a community water system.

During the fall and winter of 1913-14, H. D. Terrill, now secretary of the co-operative organization, and two of his neighbors conceived the plan of piping their farm buildings with water from a near-by spring. But in talking over the scheme that day, the suggestion of a water system big enough to benefit the whole community gripped them with its significance.

### ACTION FOLLOWS DISCUSSION

Mass meetings were held. The idea was discussed and public sentiment crystallized into action. Those originating the plan were authorized to investigate costs, materials and the advantages of incorporation. Their report, submitted before another mass meeting, was adopted, and final organization effected.

The organization, known as the Hopewell Water Company, was capitalized at $4000 and incorporated according to the Oregon State laws. Capital stock was divided into forty shares of $100 each and thirty-nine were sold immediately. The remaining share was held by the company.

Two and one-half miles of water main were secured by the company for $2406.03. This sum did not include laying expense, but covered all material, cost of surveying, blue prints, right of way, and a half acre of ground around the spring.

"The spring we had expected to use," said Mr. Terrill, "was too small for a large system, so we went a little farther back into the hills and connected with a greater supply of pure, cold water. This gave us more pressure. The reservoir is about 300 feet above the average of our main, which gives a force even here on the upper end of the line sufficient to throw a stream of water over a barn."

### PROVISION FOR EXPANSION

The system is working at full capacity now, but whenever necessity arises can be enlarged to accommodate twice as many patrons by utilizing another spring not far above the present supply.

The main line was laid by company stockholders at a cost of $534.30. Work on the ditch was done either by the men themselves or by labor they furnished. Because of its greater durability, the line was constructed of galvanized iron pipe, which was sunk to a depth of from three to four feet. For economy the size of main was reduced at three places between the beginning and end of its course.

Location of these reductions was governed by the amount of water to be taken out above them and the amount required below. A section four inches in diameter led from the reservoir. This was reduced to three inches, then two and one-half inches, and finally two inches. The greatest length of any size used was the two and one-half inch section, of which there was almost 8000 feet.

### NECESSITY FOR CUT-OFFS

Four "cut-offs" were installed at different points upon the line. The [illegible] were located just below the reservoir and the others were distributed [illegible] the course. Work on the [illegible] was completed when [illegible] made the men thankful for the proximity of a cut-off valve.

"We were working down in our field" said Mr. Terrill, "and had finished a section of piping. Before filling the ditch we always turned the water in to make sure everything was holding. This time defective pipe had been used, or else we had made a bad coupling, and the pressure caused a burst which sent a jet of water high in the air. The cut-off, where the water had been turned in, was near by so that we didn't lose much time in shutting down for repairing the damaged pipe."

The system has been in operation almost seven years, during which time several breaks have demonstrated the wisdom of the cut-offs. They save time in removing pressure from damaged parts and leave the system in working order for patrons above.

### MATERIAL ORDERS POOLED

Connections tapping the main were installed when the line was laid, but all patrons constructed their own laterals. Each made a careful tabulation of his requirements. These were pooled and the aggregate material was purchased by the company, effecting a considerable saving.

The reservoir site is utilized frequently by the young people for a picnic ground, but is well protected. A road penetrating the hills ends only a few hundred yards below the company holdings, and a short, steep climb over a sparsely forested slope leads to the spot where spring and reservoir are tucked snugly into a cup-like space hollowed in the hillside and guarded by a group of young trees.

### SPRING CAREFULLY PROTECTED

To prevent contamination, the spring has been dug out, housed with concrete and covered so that nothing can get into the water. It is situated approximately fourteen feet behind the reservoir, and a five-inch pipe connects the two.

The reservoir likewise is made of concrete. Walls are twelve inches thick, and the tank, ten by sixteen by eight feet, has a capacity of almost 10,000 gallons. A wooden superstructure with a gable roof is built on the concrete and protects the contents from pollution. Corrugated, galvanized roofing is used for covering. Windows in each end and eighteen-inch openings extending across both sides just beneath the eaves are shielded by heavy wire screening, which allows ample ventilation over the water.

An overflow pipe carries off the surplus when the flow is heavy in winter and early summer. During the dry season there is but little need for it.

### NO WATER BILLS

No expense attaches to patrons for the use of water. Cost of up-keep and payment to the State of an annual $10 license fee for the privilege of incorporation are the only financial items borne. And this, with all incidentals such as postage and stationery, averages but slightly over $2 a year per stockholder.

The company is formed on the same lines as all State corporations, but the officers serve gratuitously because the organization is for community benefit rather than profit.

The president, Walter Kirkwood, has served continuously since the company's formation in 1914.

An incident was recited by Mr. Kirkwood concerning the organization's relation to the income tax. As there were to be no profits, incorporation papers were issued with a clause which was understood to exempt the company from the red tape of the income tax.

But in due time the treasurer received a blank for supplying information on the subject. After consulting the president, he decided to give the matter no attention. A fine resulted, and the officers experienced considerable difficulty in appeasing the officials. Since then the blanks have been filled out, even though there is no income to tax.

### LITTLE ATTENTION REQUIRED

The annual meeting is held each July. At this time all matters of business relating to the success of their undertaking are transacted, including the election of officers and board of directors.

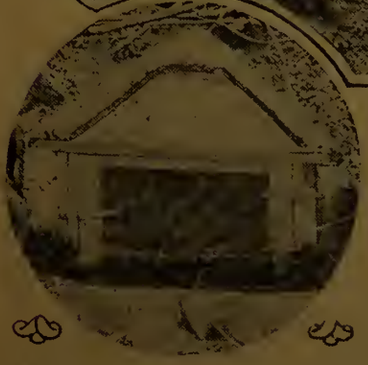
So little thought and care does the system require that the secretary says it is necessary frequently to make more than one attempt before he can secure a quorum of stockholders. And yet the company's foundation is just as solid as that of the biggest money-making corporation in the State.

Hopewell affords just an example of what a great many country communities can do by utilizing the abundant provisions of Nature.

The drudgery of path, windlass or pump has been done away with and rural life made much more attractive. In addition, the water system has materially increased the value of property, reduced fire hazard and added many fold to the joy and satisfaction of its owners. "Running water"—why not have it?

*Cold Water on Tap*

*This beats the old way of exercising at the business end of a pump-handle! The gravity pressure of the community water system is strong enough to throw a stream over a large barn. Consequently, the owners not only enjoy greater peace of mind, but also a reduction in insurance premiums. And the housewives do appreciate "running water"!*



*Protection at Source*

*The spring supplying the community water system is enclosed and covered with cement as shown at the left, while the concrete reservoir (above) also is protected against contamination. The tank has a capacity of 10,000 gallons. During the dry season the overflow pipe shown in the foreground is unnecessary. Ventilation for the reservoir is supplied by means of screened openings.*

# Crowning Achievement of California Nurserymen

By E. M. Gore

THE crowning achievement of the nurserymen of California—thus is described the great California Flower Show and Horticultural Exhibition, which will be held at Exposition Park, Los Angeles, October 20-26.

Education and beauty are the combined factors which, through, this wonderful exhibition, will make horticultural history. The California Association of Nurserymen has secured the assistance and co-operation of many civic organizations which realize the necessity for greater development of homes, gardens, parks and highways along horticultural lines. That the work of the nurserymen truly is an art will be clearly demonstrated to the public.

The scope of the affair is indicated by the fact that the Pasadena Horticultural Society has waived its annual flower show in order to join with the greater State exhibition.

After many months of planning, the show is about ready. It is under the leadership of Roy H. Wilcox, president of the State Nurserymen's Association, and Fred M. Renfro, general manager, to whom go the honors for the beauty of the last seven exhibitions of the National Orange Show at San Bernardino.

Other nurserymen prominent in the work of the association are taking active part in the show. George C. Roeding, who has been called "the busiest fruit man in California," recently has returned from an extended trip abroad and is taking up his duties as vice president of the association.

William T. Kirkman is co-operating with the Fresno Chamber of Commerce in installing a feature exhibit and is serving with the entertainment committee.

J. E. Bergtholdt is a member of the executive committee. Mr. Bergtholdt has achieved fame as the result of his widely discussed plan for advertising and popularizing California fruits.

Many remarkable features will be included in the Los Angeles show.

### PERMANENT SUNKEN GARDEN

A sunken garden, covering an area of seven acres, promises to be one of the most beautiful spectacles produced in many years. It is planted solidly to flowering and ornamental foliage plants, so timed as to be in full bloom during the period of the show. The dahlia, chrysanthemum, rose and annual and perennial plant exhibits will present a colorful picture to the visitor never equaled in a floral exhibition in the country. In addition, there will be groups of rare shrubs and trees, both ornamental and commercial, while grass walks through the gardens will afford the visitor an opportunity to study at close hand the various groupings.

In the center has been erected a large electric fountain, which will send a stream of water sixty feet into the air. The base is surrounded by a circular pool, in which pond lilies are growing. Manager Renfro has devised an electrical illumination that will make the gardens a beautiful sight at night.

### THE INDOOR FEATURES

The indoor exhibit, housed under a tent 130 by 250 feet, literally covers every angle of California's ornamental and horticultural products, which will prove not only extremely interesting, but educational as well. An elaborate illuminative and decorative scheme has been worked out. Manager Renfro has introduced an entirely new idea, which is the building of feature displays of fruits and flowers. These displays will occupy central positions in the big canvas arena and will be the offering of a number of communities and organizations, providing the setting for the flowers entered in competitive and non-competitive classes. Exhibits have been received from every section of the State.

Commercial plant life will not be forgotten, and one section of the show will be given over to the Avocado Growers' Association, which will present one of the largest avocado shows yet staged.

Liberal awards have been planned for the competitive displays and prominent horticulturists throughout the country will act as judges. The week of the show will find the nurserymen of the State in convention, as well as the avocado growers, the California Fruit Growers and the Associated Counties Horticultural Commissioners.

The men behind the show are practical plantsmen, including as heads of committees: Fred H. Howard, chairman of finance; Walter Armacost, cut flower committee; Charles F. Gutting, dahlias; Albert Goldenson, florists; W. H. Rapp, Pasadena Horticultural Society; Wm. Hertrich, ornamentals; O. W. Howard, gardens; R. M. Teague, citrus and tropical fruits; J. S. Armstrong, deciduous fruits; D. R. Reichard, seeds and appliances; Frank Lichtenberg, premiums; Paul J. Howard, entertainment; John C. Bodger, concessions and admissions, and John J. Reeves, housing and decorations.

# Great Livestock Show for San Francisco

By Edward H. Hurlbut

AND now the eyes of western stockmen are turned towards San Francisco, where big plans are materializing for the October livestock show.

With more than 60 entries, comprising several hundred head of stock received up to date of going to press, the success of the show, which will be held at 12th and Market streets, October 22 to 30, is assured, according to General Manager C. R. Thomas.

In addition to those applications that have already been acted upon, Manager Thomas has several score more on hand and is of the opinion that his chief problem will be one of elimination.

In connection with the livestock show a horse show will be held nightly, and for this, also applications are being received in very satisfactory numbers.

The shows will be under the direction of the California National Livestock Association, a body that has recently incorporated, the directorship being composed of many of the leading members of western breeding associations, together with well-known business men and bankers of San Francisco and Northern California.

C. M. Hawkins, Hollister cattleman and a director of the California Cattlemen's Association, is president, and John A. Bunting of the Mission San Jose rancho, secretary of the Pacific Coast Herford Breeders' Association, is secretary.

### TOBIN HEADS HORSE SHOW

The night horse show has as chairman of the general committee of arrangements Richard M. Tobin, San Francisco banker. Assisting him on the horse show committee are a number of other prominent citizens and a committee of patronesses under the direction of Mrs. P. E. Bowles, wife of a leading San Francisco financier.

The degree of enthusiasm evinced for the livestock show among both the breeders and the business men in this city convinces the organizers that San Francisco at last has determined seriously to support the event in a manner to insure a permanent annual livestock show in a permanent building in this city.

The organizers of the coming show are definitely committed to a policy of permanence, and by having the show in a central portion of the city on practically all main transportation

(Continued on Page 34)

## The Riverside Fair

ONE of the most interesting of the many features of the Southern California Fair to be held at Riverside October 11-16 will be a date show; this is the first time the date industry has been given such prominence. That it is destined to become a leading industry, however, is the belief of those who are now engaged in production. The exhibit will be highly instructive.

Secretary W. W. Van Pelt of the Riverside Fair, upon his return from Sacramento, declared that the number of entries in many departments of the livestock show will exceed those of the State Fair. The Southern California show will be the great dairy show of the State this year, with practically every prominent dairy herd represented, he asserted.

### MANY COUNTY EXHIBITS

Six counties have entered general exhibits for the cash awards, these being Los Angeles, Fresno, Kings, San Bernardino, Imperial and Orange. Riverside County does not enter into competition for the awards. San Diego County also is expected, making the Southern California Fair truly representative of the great Southwest.

Other features include the A. K. C. dog show, poultry, rabbit, horse, swine and livestock departments, largest goat show ever held, Indian lace making and rug making exhibit, tractor and automobile shows, and many other attractions.

Interest centers in the race program, for the Riverside event is the last of the big fairs of the State and hundreds of horses gather at Riverside to "settle old scores" and to prepare for the opening of the Tia Juana season. The largest purses of any fair in the Southwest are offered by the Riverside Association.

### BIG PREMIUM LIST

The greatest premium list in the history of the organization, $32,000 is to be provided. This means more competition and a greater number of entries. One of the features of the show is the exhibit to be made by boys' and girls' pig, bee, dairy and goat clubs, no less than fifty pig clubs already having secured space. The junior exhibits will be housed in a special tent. The United States Department of Agriculture and the State Agricultural Department will have extensive exhibits. Don't forget the date—October 11-16.

# Impressions of the State Fair

HIGHER fruit standards, better stock, improved machinery, increased efficiency of management, greater educational features—these are the outstanding impressions of the 1921 State Fair. With a satisfactory attendance, the recent event stands forth as a monument to the courage, optimism and enthusiasm of the agricultural industry of California.

Confronted with depressed business conditions, and at a time when their industry was undergoing reorganization and reconstruction, the tractor and implement men came back with one of the finest exhibits ever shown at the Fair. Reviewing briefly the many educational and interesting displays, we find a number of new tractor models and modern improvements in machinery.

The Holt "Baby," known as the 14-25,

(Continued on Page 23)

# PRACTICAL POINTERS
## IN FEW WORDS FOR BUSY FARMERS

**Don't Mail Poisons**—According to George P. Gray, chief of the California Division of Chemistry, his department has received through the mail, several packages containing samples of poisonous material. Mr. Gray points out that the mailing of such materials is in violation of the United States criminal code, which classifies as non-mailable, all kinds of poisons, all explosives and inflammable materials, and all other articles that may injure a person, the mails or other property, whether sealed as first-class matter or not. Wilful use of the United States mails for sending such materials is punishable by heavy fine and imprisonment.

**Lump Jaw in Cattle**—The disease known as big jaw, lumpy jaw and wooden tongue in cattle, is caused by a microscopic fungus, each form of the disease being known as actinomycocis.

The general belief that it is caused by eating fodder containing sharp beards or awns, is substantiated by scientific research, but it is shown that a tiny organism carried upon the beards and not the irritation, is the cause of the disease. Treatment is recommended as follows: Avoid stubble grazing and straw stack rations. Substitute green forage, silage, clover and alfalfa. Surgical attention to the swelling may be necessary. Since the disease is local, it does not affect the value of the animal for food.

**Free Explosives for Farmers**—It is announced through the U. S. Department of Agriculture that more than 12,000,000 pounds of salvaged picric acid is available for free distribution to farmers for use in blasting and land clearing. This explosive was developed for use during the war and may he used with no more danger than TNT or dynamite, according to the department. The only charge made by the Government will be for packing and transportation. Certain precautions are urged in handling the material, these instructions being available upon application. Information as to State headquarters through which the explosive will bo distributed in each locality may be obtained from the Bureau of Public Roads, Washington.

**The Milking Shorthorn**—Of interest to all dairymen, and encouraging to milking shorthorn breeders, is the fact that the "best cow of any breed or cross," at the 1920 London Dairy Show was a milking shorthorn, with a record of 9000 pounds. Interest in this breed not only in California, but all over America, is increasing. Certain advocates of the beef type maintain that no animal can reach its highest development when bred for a dual purposc. Many dairy breeders, also, see no justification for combining bcef with milk production. But these arguments are answered by the dual purpose boosters with the assertion that the ideal general-purpose farm cow is the one that makes both meat and milk. For, they point out, the steers can bc raised and fed with profit, while as much milk can be secured as from average grade cows of dairy breeds, not to mention the possibilities of attractive profits from breeding stock The milking shorthorn breeders have many strong points in their favor, and are making the most of them.

**The Rural Directory**—The farmers of a certain county in Northwestern Arkansas have issued a directory of the county similar to that published in most cities and towns. The rural directory gives a list of the farm owners and farm hands with families, tenants with families and farm laborers with families. Since about [illegible] cent of the farmers are home owners, the population is quite permanent. Other information supplied by the directory includes the specialties of each farmer, his leading crop and kind of livestock or poultry, telephone number, rural route and directions for reaching his place, such as distance from road, school or postoffice. The directory proves its value almost daily. It brings people of remote rural districts into the light, placing them in touch with buyers and dealers, and with each other. It aids individual farmers in establishing a reputation by means of a special farm name or certain products. Also, it has been a great help in all get-together movements in the county.

**The Menace of Roadside Weeds**—Every farmer well may take it upon himself to destroy the weeds growing along the public roads or canals. Such weeds act as centers of infestation for adjoining fields and may be carried for miles by the wind, water, animals or vehicles. They harbor disease and insect pests, create unsanitary conditions and detract from the appearance of the community. The nuisance may be abated by grading roadsides so that control is facilitated, by mowing twice or three times annually, especially during the blooming period, by utilizing the space for growing hay, or by grazing with tethered animals.

**High Sills Cause Pig Losses**—Many pigs are lost and others are stunted in growth as the result of exposuro because of high sills in front of hog-pens. This is the observation of a Nebraska swine grower in a letter to the United States Department of Agriculture on the cause of runty livestock. He urgcs that stockmen examine their equipment, and be certain that small pigs are able to follow the sows into the pens. Attention to balanced rations, sanitation and pure water likewise are mentioned as methods of preventing the development of runts.

**Burn Animal Carcasses**—Many serious diseases of animals are spread, through carelessness in disposing of carcasses. The only safe method is to burn them, with deep burial as the best substitute, provided quick lime is sprinkled over the carcess before covering with dirt. Animals and birds have been known to cause wide-spread epidemics of anthrax, glanders, hog cholera, rabies and other diseases, because of contact with exposed carcasses.

**Belts for Farm Machinery**—Engineers and mechanics issue warning that belts used on machinery should not be run tight. A slack belt usually is just as efficient, and prevents the strain on pulleys that often results from tight stretching. This uneven strain may cause pressure on the bearings, with consequent damage. Rubber belts are advantageous under certain atmospheric conditions, but are likely to be injured by oils and greases. A good dressing for leather belting, as suggested by an engine expert, is, two parts tallow and one part codliver oil. Neatsfoot oil also makes a good dressing for leather belts, but may be injurious to rubber.

**Tuberculosis of Fowls**—Recent research discloses the fact that poultry tuberculosis is widely distributed over the United States, and is present in more flocks than generally realized. The insidious manner of attack makes the disease difficult to combat, affected birds showing no visible symptoms until the disease is far advanced. One of the first symptoms is gradual emaciation, especially noticeable in the breast muscles, although the appetite continues good. Lameness may effect one or both legs. Drooping of one or both wings is another symptom. Medical treatment is futile. Slaughtering of birds known to be affected is recommended, while disinfection and cleanliness with simple and good feeding are suggested as the best preventive measures. The disease is technically known as avian tuberculosis.

**The Tractor Spreader**—Interesting in its relation to modern methods is the announcement of a manufacturer who advertises a sale of tractor-drawn manure spreaders, adding that a horse hitch can be furnished at small additional cost. Considering that the manure spreader in itself is comparatively a recent invention, "old timers" among the ORCHARD and FARM family will appreciate the significance of this ultra modern development.

**Dehorning Pays**—"The cow with the crumpled horn," as well as all other cows with horns, finds no place in the herds of many progressive dairymen and livestock breeders. Dehorning eliminates much danger and tends to improve the dispositions of the animals. Many owners prefer to treat the calves with caustic so that the horn buttons never develop. For mature animals, the use of dehorning shears, followed by searing or some other method to prevent hemorrhage is considered most satisfactory. In "fly time" the use of pine tar or other ointment is recommended to protect the wounds from flies.

**A Satisfactory White Wash**—Almost every farmer recognizes the value of paint for preserving and beautifying his buildings. When the cost is prohibitive, the use of white wash is perhaps the best substitute. The following formula for white washing barns is recommended by the United States Department of Agriculture: (1) To twelve gallons of water add one bushel of quick lime. (2) Dissolve two pounds of common salt and one pound of zinc sulphate in two gallons of hot water. (3) Mix (1) and (2) and add two gallons of skim milk. Apply with sprayer or brush.

**Salvaging Used Engine Oil**—A power farming authority predicts that within the next few years, every large operator of tractors and engines will own apparatus for reclaiming used crank-case oil. Gasoline may be driven out by distillation and solid matter removed by precipitation. It is said that such a reclaiming machine may be operated at a cost of 5 cents a gallon. While the method recently developed is pronounced very successful, so far the apparatus is being manufactured in sizes suitable only for such agencies as public garages. While this plan is not yet in general use, its possibilities for increasing power farming efficiency are interesting.

**Preserving Sweet Cider or Grape Juice**—These liquids may be preserved in sweet condition indefinitely by the following process, according to the United States Department of Agriculture: Allow juices to stand over night in a cool location in wooden or earthenware containers. Pour into sterilized glass jars or bottles. (When fruit jars are used they should be fitted with sterilized caps and rubbers; caps for bottles also should be sterilized.) Prepare a "water bath" by fitting a wash boiler with a wooden rack, fill with cold water and invert jars or bottles, or lay on one side, upon the rack. Hang a thermometer so that it will dip for half its length into the water, which is heated gradually to exactly 175 degrees F. If small bottles or jars are used, allow them to remain in the water thirty minutes; gallon bottles forty to forty-five minutes. Upon removing from water tighten down caps. If corks are used cover with hot paraffin. Place in cool, dark room, watch for a period of a week and repeat the process with any bottles that show signs of fermenting. In two or three months all suspended solid matter will settle to the bottom. The clear liquid may be used directly, or drawn off into clean bottles, which should be sterilized, and again pasteurized, this time to 170 degrees F. A reliable thermometer is essential in order that the exact temperature may be reached. Overheating, on the other hand, impairs the flavor.

**Wasted Effort on the Farm**—Have you ever checked up methods of doing the work upon your ranch with a view to increasing efficiency? A certain dairyman, milking 125 cows, upon analyzing his business, found that his men had traveled a total distance of more than 500 miles a year, or during the seven years the dairy has been in operation, 3619 miles, carrying the milk from the barn to the dairy house. Reducing this wasted effort to dollars, he found that the money spent for the unnecessary labor would have constructed a new milk house nearer to the barn, with more modern equipment. A little introspection is good for almost any business. The principles of efficiency apply to agriculture as well as other industries.—Albert J. Mason.

**Careful Packing Pays**—Careless packing of goods shipped by freight has reduced the net earnings of the principal railroads more than $200,000,000 during the past two years, according to officials of the Southern Pacific Company. The damage payments, it is pointed out, represent losses to both carriers and the public with no advantage to anyone. The co-operation of the public, more especially farmers shipping perishable products, is urgently requested as one means of increasing railroad efficiency and bringing about a decrease in rates.

## Ben Gonnadooit Says

*I jest bin' t' th' State Fair. An' I want t' say I consider Fairs of all kinds simply a waste o' money an' energy. Analyzin' th' Fair, we see it ain't what it's cracked up t' be, fer it's supposed t' furnish education an' amusement. Now, th' only educational feature I seen was th' fish exhibit. I DID learn a lot there about th' different kinds o' trout an' bass, an' as a result, I expect t' get a lot more out o' my fishin' trips.*

*But as fer th' horses, an' cattle, an' pun'kins, an' fruit, an' tractors, an' machinery, why th' ouly effect o' them things was t' remind me of work—an' all th' tasks I left undone at home.*

*I got so tired jest walkin' around, thet it would a spoiled all th' fun anyway. Of course, them fellers thet had th' fine stock an' prize winnin' fruit may have made money by goin', but all I did was t' spend money, an' what have I got t' show fer it? Jest a couple o' sore feet, due to a cop swattin' me across th' soles o' my shoes fer goin' t' sleep under th' grandstand, while I was tryin' t' rest. I'm all off 'o' fairs, I'll tell you! Never again!* —BEN GONNADOOIT.

# What's What in the Orchard—Practical Information Boiled Down

By George P. Weldon

CONTRIBUTING HORTICUTURAL EDITOR OF ORCHARD AND FARM
Pomologist, Chaffey Junior College of Agriculture

## Clouds of Dust, But Some Bugs Still Alive and Kicking. Shall We Abandon Liquid Spray?

THE idea of applying insecticides and fungicides to our trees, in the form of a dust instead of a liquid is not new. Lately, however, there has been much agitation regarding the use of dust materials. In fact the developments of the past year or two would seem to indicate the possibility of general use of these materials.

Dusting with sulfur to control mites and mildew is an old practice which is especially familiar to almond, prune and grape growers, but dusting with contact or poisonous insecticides is rather a new practice as far as California is concerned.

The increase in the use of dust materials is due very largely to the fact that there occurs on the walnut trees, an aphis which does great injury at certain times. It has been found too expensive an operation to spray large walnut trees with the regular spraying equipment and liquid material.

### DEVELOPMENT OF NICODUST

This fact resulted in the development of a dust contact insecticide containing kaolin as a carrier and nicotine as a killing agent for use in the control of the walnut aphis. Professor R. E. Smith of the University of California was responsible for this work and in his experiments he found that the walnut aphis could be controlled by means of a dust application of this material. Walnut growers, therefore, adopted "Nico-dust," as the new insecticide was called, and large quantities now are being used in the walnut-growing counties of Southern California.

This work with the walnut aroused general interest among entomologists in the dust spray, and much experimental work has been conducted recently, to determine the effect of a nicotine dust spray upon other plant lice besides the walnut aphis, as well as different species of fruit tree-infesting thrips.

Not only has work been done with dust mixtures containing nicotine, but also with those containing arsenic for use in the control of chewing insects, such as the codling moth of the apple, pear and walnut. Recent work has indicated that sulfur, when used as a carrier instead of kaolin, results in a better destruction of insects amenable to control by a contact dust spray. Lime also is being used satisfactorily as a carrier.

### TWO TYPES APPLICATORS

The application of the dust materials has been made either with power dusters which effectively distribute the material over the foliage of the trees, or with small hand dusters which are satisfactory, but which require more labor and time.

In the discussions at Berkeley on August 4 and 5, which took place in the annual meeting of the Pacific Branch of the American Association of Economic Entomologists, the fact was revealed that results from numerous experiments on a variety of insects did not justify any sweeping recommendations for the use of dust materials.

While under certain conditions careful experiments have proven the value of dusting, under other conditions no apparent benefit has been noted. The experiments thus far seem to indicate that the climatological factor enters into the case and it is only under certain conditions of temperature that we can expect results from a contact dust containing nicotine as the killing agent.

While some entomological workers reported splendid success in controlling such insects as thrips and aphids, others reported no success, even going so far as to state that the material did not kill any of the insects for which it was used.

The writer, in giving his experience, cited cases of dust application made for the control of peach thrips and Black peach aphis at Ontario, where results were absolutely negative.

In the consideration of the question the important fact was emphasized, that the nicotine content of the dust materials now on the market is variable to such an extent that little dependence can be placed upon them. This may account for some of the poor results that have been attained. This objection to the material as now sold will no doubt be remedied and a more uniform product can be expected in the future.

### A WORD OF CAUTION

In conclusion it is felt that a word of caution is necessary in regard to the use of dust materials in the treatment of trees for the control of insects and fungous diseases. Liquid sprays have been used for many years and are a success. And while walnut growers no doubt are justified in the use of "nico-dust" in the treatment of their groves for the control of walnut aphis, the growers of smaller kinds of trees should continue to use the proven effective liquid sprays until careful experiments have shown as good results from dusting, and until the dust materials which are being manufactured may be depended upon for uniformity of nicotine content.

It is far from the writer's intention to discourage further experimental work with dust insecticides and fungicides, for only through such work have any of our standard sprays been perfected. Dusting in time may prove better, more economical and more practical than spraying. At present, however, it does not meet the test in a way that would justify its recommendation without caution.—G. P. W.

## Fall Spray for Peach Blight. Apricots, Too, Benefit by Double Application

PEACH trees are subject to the attack of a fungous disease which causes the death of buds and (in extreme cases) the tips of the new growth.

Gumming, which often accompanies this disease, is one of the characteristic symptoms. Small, red canker-like patches on the bark of young twigs especially near the buds and lateral branches also are associated with blight attack.

The disease commonly is found in peach-growing sections of the West. The causal agent is a fungus known to the plant pathologist as **Coryneum beijerinckii.** This same fungus is responsible for the disease of the apricot known as shot-hole, which may be recognized by small holes in the leaves where the fungus has attacked and by scabbing of the fruit.

### DIFFICULTY OF CONTROL

Peach blight is much more difficult to control than the more common curl leaf disease of the peach. While the latter requires only one application of a good fungicide in the spring, for its control, blight requires both a fall and a spring application.

The best practice that can be recommended for control of blight on peaches and apricots is thorough spraying with a strong solution of Bordeaux mixture in the fall, about November or December. Six pounds of copper-sulfate and six pounds of lime, to fifty gallons of water is the recommended dosage. Bordeaux mixture may be purchased as a prepared paste, in which case full dormant strength as recommended on the package, should be used.

### THE SPRING SPRAY

Following the fall application of Bordeaux mixture, the affected trees should be sprayed in the spring with lime-sulfur, full dormant strength; or in other words, one gallon of liquid lime-sulfur to ten gallons of water or two pounds of dry lime-sulfur to ten gallons of water.

The double application recommended not only will control blight, but also curl leaf, twig borer and brown mite. Lime-sulfur, which is an insecticide as well as a fungicide, is used in the spring instead of Bordeaux because of the common occurrence of the two last-mentioned pests.

Peach and apricot growers can form no better spraying habit than that of applying Bordeaux mixture in the fall and lime-sulfur in the spring as the buds are swelling. These two treatments give the best possible protection to the trees and fruit against the attack of fungous and insect pests.—G. P. W.

## Various Steps in Grafting Grapevines

By Fred K. Howard

PUBLISHED BY COURTESY ASSOCIATED GROWER

The dirt first is removed from around the base of the vine, which then is decapitated with a sharp saw a few inches below the true surface of the soil.

Select a place on the stump where the grain of the wood will allow a straight split. This split may be made entirely across the stump.

After preparing a wedge-shaped scion of the desired variety, insert it in the split so that the cambium layers (growing tissue) of the stock and scion meet.

The graft then is completely covered with moist, pulverized earth, no grafting wax being necessary. Unless the stock is small no tying is required.

## Will Chestnut Growing Become Big California Industry? Interesting Possibilities Cited.

COMMERCIALLY speaking, chestnut growing in California is not of great importance now, but with conditions in many places favorable, and with a tremendous reduction of the Eastern crop, because of loss of trees by blight, there is sure to be a development of this branch of nut growing in California.

### PRECAUTIONS NECESSARY

It is highly important that chestnuts planted in this State be very carefully inspected, not only at the time of planting, but also for several years afterward, in order to detect the first signs of the dreaded chestnut blight, should it be present.

So far it has not been found in the State, and with the future looking so bright, no chances should be taken with a disease which in the chestnut-growing sections of the East has practically wiped out the industry, as pear blight has done in some sections where this fruit has been planted.

The above paragraphs were contributed by the writer to the April, 1919, "Monthly Bulletin" of the State Horticultural Commission. The facts outlined at that time are strongly emphasized in a recent statement to the Plant Quarantine Service of the California Department of Agriculture by Mr. G. F. Gravatt, Pathologist Bureau of Plant Industry, U. S. Department of Agriculture, who said:

"The chestnut orchard industry in the Middle Atlantic and New England States practically has been destroyed during the last fifteen years by the chestnut blight, **Endothia parasitica** (Murr. And.)

"This fungus disease, an importation from Asia, now extends from North Carolina north to Canada and westward into Ohio and West Virginia. The disease is steadily spreading, and in time may be expected to extend over the range of the native chestnut and chinquapin.

"Outside of the range of the native chestnut, the planting in favorable sections of commercial varieties of chestnut has been fairly profitable and stands a fair show to continue to be a paying proposition, provided the blight is kept out.

"It is certain, though, that the disease will not be kept out of the West if the present practice of purchasing trees from Eastern nurserymen is continued. Chestnut nursery stock grown within the infected area is exposed to the disease from native trees.

Nowhere else in the United States would there seem to be the possi-

(Continued on Page 19)

# Carrying on With the Carob

*"YOUR fathers did eat manna in the wilderness." The Biblical quotation, many students believe, refers to the carob or St. John's bread. Having stood the test of the centuries, this remarkable food plant now promises to add another interesting chapter to California's horticultural history, increasing production and prosperity.*

By James C. Knollin

HOW will you have your carob this morning?

Do you prefer syrup for your cakes, carob breakfast food with cream (it will require no sugar) or muffins made with carob flour? These are but a few of the uses for this remarkable food product.

The carob tree, believed by many to have a greater future in California than the almond, orange, fig, date and other "adopted" fruits, is perhaps the nearest approach to a food factory in Mother Nature's wonderful laboratory.

Living up to the highest ideals of modern food manufacturers, it matures and cures its fruit upon the tree, providing each with a sanitary, airtight container, not subject to decay, shrinkage or loss from storage.

Factory managers would find other attributes of the carob tree attractive.

LABOR ITEM SMALL

For example, the labor problem is reduced to a minimum, experience in other countries indicating that a carob orchard needs nothing more than careful cultivation to produce an ever-increasing crop year after year, indefinitely. The term "in other countries" is used advisedly, for the first commercial planting of the carob in the United States has just been made upon the great Rancho El Sobrante in Riverside County, Southern California.

True, this planting consists only of five acres, but into this five acres has gone years of patient research work and the expenditure of thousands of dollars by those who had a great vision, together with the courage to give it substance in the face of ridicule and criticism. For, indeed, it takes courage to pioneer in any industry.

There are many, to be sure, who express skepticism as to the commercial future of carob growing. But the more one investigates this interesting infant industry, the more he comes to believe that these skeptical ones will laugh neither last nor best.

The carob appears to have every attribute for cultural and commercial success in those parts of California adapted to its culture. To be sure, it demands an almost frost-free location with suitable soil and climatic conditions apparently [illegible] only in the [illegible] parts of California. [illegible]

tically a monopoly for California growers, and it is believed the carob can be grown in favorable locations without irrigation, spraying, fumigation or pruning.

Study of the plant shows it to be almost ever lasting and ever bearing. It is leguminous and its foliage is perennially green. A beautiful shade tree, it maintains a steady growth for many years, reaching a good size and bearing its first commercial crop as a rule during the fourth year from budding. The carob is not new in California, having been grown for years in a desultory way as an ornamental. But recent research work has developed new facts concerning the tree.

The methods of propagation are most interesting. Nurserymen have appreciated the necessity for budding, as seedlings grow like wild trees, seldom reproducing their like. But it remained for F. D. Cornell, Lawrence Holmes, J. E. McBride, A. J. Southard, and associates, to devise an entirely new method of propagation which has attracted the attention of horticulturists throughout the world.

Early experiments showed that the growing of seedlings in pots resulted in the formation of a curled root which, when the young tree was planted, frequently choked or eventually killed it. Working upon the theory, therefore, that opportunity must be given for normal root growth, these carob enthusiasts conceived the idea of raising the seedlings after a special plan which is being carried out in their own nursery.

NURSERY STOCK THRIVES

More than 40,000 young trees have been successfully raised by this method and many of these are to be set out this fall upon the land now being carefully prepared. The seedlings are not to be budded in the nursery, but rather in the field several months after planting, buds being selected from aged individual trees now established as the result of ornamental plantings made years ago.

Provision is being made for pollination, it being necessary to interplant male and female varieties. That the methods of culture now being pursued are successful is indicated by the 100 per cent stand secured with the first commercial planting, the young trees having doubled their height in less than four months after being set out.

The nursery method is as follows: Before the seedlings have developed much of root system they are transferred to "cradles" made of lath and tar paper. The lath, cut 24 inches long, serves as a guide and support for the long tap root, which follows the length of the wood in developing, while the tar paper, fastened to the back of the lath and bent upward on either side, forms a mold for the nursery soil in which the seedlings are packed.

These cradles are placed together in frames which are stacked at an angle of about 45 degrees in long beds and completely covered with sandy earth, carefully mixed with leaf mold, and kept moist. At from 12 to 18 months, the young trees attain usually a root development of from 12 to 24 inches, and are ready to be set out in the field. At this time the tar paper is cut from the sides, and the lath, with the original nursery dirt and the young tree intact, is inserted in the hole prepared for planting.

The special system of propagation extends to the fields and includes planting methods, which it is believed will give assurance of immediate and healthy growth.

(Continued on Page 16)

*A 25-Year-Old Carob Tree and (Insert) Typical Pod Cluster, Riverside County.*

# There is something in being original

Ever since the early 70's Ghirardelli's Ground Chocolate has been acknowledged the *original* ground chocolate—the chocolate of proved purity, the chocolate of certainty. As a food-beverage Ghirardelli's stands alone—in taste, in flavor, in everyday economy. Say "*Gear-ar-delly*" to your grocer and accept no other ❧ Made by D. Ghirardelli Co., San Francisco—since 1852.

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# The Prize Winners

## Here Are the Names of Those Who Won Cash Prizes in Helpful Suggestions

DESPITE the great number of entries received within the past few weeks, the judges have been able to consider all the helpful suggestions furnished by our readers during the months when the contest has been conducted.

ORCHARD and FARM is glad indeed to mail checks to the fortunate winners and to reward each and every one who has aided us to produce a helpful magazine by contributing original ideas and experiences.

If by any chance we have failed to include any entries published, we shall be glad to make correction upon receipt of proof. In handling such a great amount of correspondence over a period of several months, it is not always possible to avoid errors, but the judges have made a conscientious effort to be both fair and thorough.

Here, then, are the lucky winners who "get the money":

**FIRST PRIZE, $30—*D. R. Ruble*, Salem, Ore.—**
**"My Experience With Plant Selection," published April, 1921.**

**SECOND PRIZE, $20—*H. J. Hoepfner*, Woodlnad, Cal.—**
**"How I Use a Planting Board," published March, 1921.**

**THIRD PRIZE, $15—*F. O. Winberg*, Templeton, Cal.—**
**"Substitute for a Trap Nest," published September, 1921.**

**FOURTH PRIZE, $10—*Mr. L. C. Dittman*, Lompoc, Cal.—**
**"A Dish Washing Hint," published April, 1921.**

### *Five Prizes of $5.00 Each*

*Dr. Beverly Young*, Arvin, Cal.—
"How to Make an Enclosed Porch More Attractive," September, 1921.

*Mrs. C. J. Mailey*, Wilton, Cal.—
"My Experience With Lights to Increase Egg Production," May, 1921.

*F. A. Wilkendorf*, Woodland, Cal.—
"Cleaning a Ditch," September, 1921.

*L. L. Kilgore*, Colusa, Cal.—
"An Indoor Clothes Line," April, 1921.

*Hugh V. Harris*, Sebastopol, Cal.—
"An Orchard Hint—To Avoid Scarring Bark," August, 1921.

### *Seven Prizes of $3.00 Each*

*Howard Bacon*, San Gabriel, Cal.—
"How to Keep Sweet Potatoes," August, 1921.

*Mrs. Chas. C. Richmond*, Riverside, Cal.—
"How I Raise Turkeys," March, 1921.

*Annette E. Saxton*, Alamo, Cal.—
"Home-made Fireless Cooker."

*Emma J. Torbet*, Stockton, Cal.—
"To Mend a Water Tank," July, 1921.

*Harry E. Thompson*, Napa, Cal.—
"Morning Glory Eradicator."

*J. B. Byberg*, Silverton, Ore.—
"A Fruit Picking Ladder," October, 1921.

*Mrs. Geo. A. Enos*, Salinas, Cal.—
"A Garden Suggestion," May, 1921.

### *Ten Prizes of $2.00 Each*

*Chas. Collings*, Petaluma, Cal.—
"Starting an Engine," March, 1921.

*L. Fiburg*, Oakland, Cal.—
"Chick Mash Box," April, 1921.

*J. G. Hootman*, Puente, Cal.—
"Feed Hoppers for Poultry," July, 1921.

*Mrs. Marie Merkel*, San Francisco—
"Hanger for Towels," April, 1921.

*Mrs. J. T. Murphy*, Gilroy, Cal.—
"Ice Cream Hint."

*O. A. Molitz*, San Fernando, Cal.—
"Grape Planting Advice," March, 1921.

*Miss M. E. McDaniel*, Templeton, Cal.—
"Sausage Casings," July, 1921.

*W. H. Oliver*, Fairmead, Cal.—
"Economical Irrigation."

*A. Ross*, Ripon, Cal.—
"Barnyard Apartments," February, 1921.

*Albert Schlapback*, San Luis Obispo, Cal.—
"Straight Garden Rows."

**The following were given *Honorable Mention* and in addition, to each who submitted an article that was published, will be paid the sum of $1 (for each idea not awarded a regular prize).**

Nettie I. Briggs, Winton, Cal.; Frank V. Bode, Santa Rosa, Cal.; Mrs. D. J. Dunkin, Wolcott, Ind.; J. A. Erickson, Monrovia, Cal.; Mrs. J. M. Franco, Reno, Nev.; Mrs. J. Gray, Troutdale, Cal.; A. J. Godsman, Wrights, Cal.; Mrs. J. H. Getz, Gardena, Cal; Mrs. F. L. Geer, Paso Robles, Cal.; Wm. Hett, Valley Center, Cal.; A. Hill, San Francisco, Cal.; Mrs. Iven Icenbice, Klamath Falls, Ore.; Miss Vera Lamon, Lemon Grove, Cal.; Joe Linsier, Martinez, Cal.; John J. Linde, Lodi, Cal.; Mrs. J. T. Lovell, Monticello, Cal.; Mrs. M. L. Mowry, Centerville, Cal.; R. W. Madison, Palo Alto, Cal.; H. M. Mukley, Santa Susana, Cal.; Emma T. Moyer, Napa, Cal.; Mrs. J. B. Manley, Swanton, Cal.; Mary L. Hootman, Puente, Cal.; Mrs. L. Moskowite, Sonoma, Cal.; Mrs. Thomas Reuck, Tulare, Cal.; M. Rist, Calistoga, Cal.; Emma Smith, Millville, Cal.; Roy G. Sied, Taft, Ore.; Roger Searle, Napa, Cal.; Fred Sims, Winter, Cal.; W. E. Snell, Los Angeles, Cal.; W. L. Smith, Santa Maria, Cal.; Edward M. Transue, Corning, Cal.; A. C. Thompson, San Diego, Cal.; Myrtle Williams, Carrville, Cal.; L. A. White, San Gabriel, Cal.; Mrs. C. Walls, Pozo, Cal., Chas. L. Wilbur, Yuba City, Cal.

# Leasing Contracts for California Conditions

By R. L. Adams
PROFESSOR OF FARM MANAGEMENT
CALIFORNIA COLLEGE OF AGRICULTURE, BERKELEY

WE are about to en. the "open season" for leasing farm lands. Of 117,670 farmers credited to California by the recent census, 25,141 are tenants.

Of these tenants, 9643 were operating under a share basis, 14,230 for cash rental and 742 by a combined share-cash method. The method of 526 tenants was not specified. These figures show that more than 20 per cent of the farms are operated by tenants. The majority of these tenants operate under an annual lease, so that approximately 20,000 or 22,000 leases—verbal or written—must be made out annually.

Lease making largely is a matter of religiously following precedent. I was reading a book on leasing English lands, written nearly a century ago by the grandfather of one of our college of agriculture men, and therein I found the foundation of California's method of share-renting lands for grain: i.e.—one-third — two-thirds; one-quarter — three-quarters, etc. It is indeed a persistent method that will survive an hundred years and be transplanted over six thousand miles from its point of origin.

One encounters some laughable terms in leases. For instance, the feeling is quite widespread that leases must be written in high-sounding legal phraseology if they are to stand the test of disputes. This idea was evidently in the minds of two men whose lease is recorded in the Fresno Court House. It reads:

### WORDS WITHOUT MEANING

"Witneseeth: That the party of the first part, for and in consideration of the covenants hereinafter mentioned, on behalf of the party of the eecond part, to be paid and performed, hae let and by ths preeents do let unto the party of the second part, hie heirs," etc . . . .

"Together with all the appurtenancee thereunto appertaining, and all the stock, and farming utenelle now being in or upon ths same . . . ⅛-inch disk harrow, 3x8 gang plow . . . . .

"That he (tenant) will deliver to the party of the firet part, or to heire or assigns or order, one equal of all the proceeds and crope produced on the premiees aforesaid, to be divided there, in ½ on all crops on vineyard property produced, and ¼ on hay crop. . . . .

"Party of the second part ehall find all seed nsceesary.

"The party to yield peaceable poesession, etc. (language ran out).

"Ths first party ehall furnish on eaid premisee, Traye en Place and Pape(r) for Bal at the proper time, eufficient the coming to be. (Interpret it!)

"In case the said Tenant party of second part"—and eo it oontinuee!

### DEFINITION OF LEASE

In drawing up a lease it should be borne in mind that a lease is a contract when duly signed and delivered, providing for the nossession and income of designated lands for a stated period in consideration of value given.

A lease should—

(a) Be written.
(b) Conform to State and Federal statutes. This covers witnessing, recording, revenue stamps, etc.
(c) Be as brief as consistent with presentation of all essential facts.
(d) Be worded as simply and clearly as possible.

*In California, a yearly lease need not be written.* It is sufficient for one man to say to another, in the presence of a third party as witness, "I lease (or rent) you this land (description) for one year from date," and for the lessee to say, "I accept (or take) this lease (or land or farm)."

Widely varying conditions under which farming is conducted call for widely different types of leases. A recent publication of the United States Department of Agriculture, Farmers' Bulletin 1164, "Farm Lease Contracts," lists 97 items which a lease should contain. (Copies available for free distribution on request to Division of Farm Management, College of Agriculture, 309 Hilgard Hall, Berkeley, Calif.). Usually the cash lease is the simpler.

### SHORT CASH LEASE

The shortest lease I have run across [illegible] a cash lease. It reads:

'Laton, Fresno Co., Calif.,
Dec. 15, 1918.

This [illegible]ndent[illegible] was made the 15th of De-[illegible]r in t[illegible] of our Lord, 1918. [illegible]th [illegible]t I, ... ....., do hereby [illegible] unto . ..... .. a cer-[illegible] in the County of Fresno, [illegible] f[illegible]rnia, to hold for the [illegible] f[illegible]ve [illegible] years beginning the 15th [illegible]8 and te[illegible]minating De-[illegible] [illegible] to pay $800 annually, $200 cash and the remainder in equal payments quarterly. Said lessor agrees not to run any etock in the orchard and to keep all fences and buildinge repaired. Said lessor agrees to take nothing from the premisee in case eaid lessor leaves the premises before the term of the leaee expires.

Above premiees are: (Description of 1½ lines.)

Said lessor agrees to keep all corrals and barn cleaned and hauled on land.

In witness thereof, the eaid parties have hereunto set their hands and seals, the day and year first above written.

Signed..........................
..........................

Ordinarily, however, too little attention is given to outlining in detail the various items of good farming which should rule in conducting the farming operations. It is important that fullest attention be given to this matter because there are really three elements involved in every farm lease—the landlord, the tenant, and *the land.* Provision for division of income usually is fully and satisfactorily (more or less) covered. The land, together with equipment, does not commonly fare so well. Yet an orchard lease which I found on record in San Jose is a shining exception to the general rule. It suggests a model for others to follow. I therefore give it in full.

> ***HOW many "whereas's and hereunto's" are necessary in order to make a lease contract binding? What sort of contract is best suited to California conditions? Is there such a thing as a trouble-proof agreement between landlord and tenant? Important questions, these. And we have asked Professor Adams to answer them in his pleasing but straight-from-the-shoulder way. More observations will follow. And here is a mighty good "starter."—Editor.***

## A Model Share Lease

THIS agreement, made this ............ day of ............... 19...., by and between ...................., party of the first part, and .... ........., party of the second part, both of the town of..... ............, County of Santa Clara, State of California,

Witneeseth ae followe:

(1) Party of the first part agreee to leaee and doee hereby lease, and let, to the party of the second part, all thoee sections of his orchard at .................... (location), near .................(town), in the County of Santa Clara, which are planted to apricote, for the purpose of plowing cultivating and otherwise taking care of, eaid orchard, and taking off crop of apricots therefrom.

(2) Ths life of this lsaee ehall bs from the date firet above written to ............, 19...., with the privilege of renewal of the lease to ...................., 19...., or 19...., subject to the conditions set forth in paragraph 7.

(3) The party of the first part agrsse to accept, and the party of the ssoond part agrees to pay for and in coneidsration of the rental of the land and trees ae above, ons-half ths gross amount received by him for the sale of the apricots if they ars sold green, or forty per cent of ths gross amount rsceivsd by him if they are sold dry, in which lattsr event the proceede from the sale of ths pits are to be included as a part of the gross eales.

(4) The party of ths first part is to be informed of the exact prics at which the party of the eecond part proposes to sell the crop undsr either of the conditions set forth in paragraph 3 before eams ie sold, or a contract of sale ie made, and if the party of ths firet part bslieves ths price ie too low, he hereby reservee ths right to purchase eaid crop himself, at said price, in order to hold same for a higher market to protect himself from undue loss.

(5) The work to bs done in the orchard by ths party of the second part, at hie own expenee, ehall bs as followe:

Dig for borers the first year of the lsase (preferably during ths fall of 19...., or in 19....) and to perform thie work thoroughly on all ths fruit treee inoluded within the above mentioned aea (including a small number of prune trees intsrplantsd in said orchard), the eeoond and third yeare a dozen treee ehall be selected at random by both partiee hereto, and examined for borere. If borere are found the entirs orchard shall be gone over a eecond time. And similarly in 1920.

*As soon as the ground has sufficiently dried after the winter rains to permit it, the orchard ehall be plowed at least six inches deep with two or four-horse, mold-board plowe and ahall be finished up as close to the trees as possible with one-horse plows, at leaet four inches deep. It ehall then be disc harrowed if the lumps are too hard to break with a spike-tooth harrow, and shall be given during the spring and eummer months ae many harrowings as necessary to keep the ground from packing. If very heavy rains occur after the first plowing, which cause packing of the ground, eaid ground shall be replowed.

All fruit trees within the area described in paragraph 1 above ehall be thoroughly whitewaehed in the spring of 19.... from the ground up to pointe on the branches where said branches are shaded by leaves, etc., from the eun, and thie operation ehall be repeated in 19..... A suitable formula for the whitewash shall be employed such, for example, ae that containing ealt and tallow, in order to make the whitewaeh resist rain, etc.

Each fall, except the last year of the leaee, party of the second part shall prune all the trees in the above area, and shall exercise in euch work the very beet ekill and knowledge at his command, and shall see that any other men employed in euch work shall have been experienced on euch work elsewhere, and that they do their work in a thorough and workmanlike manner, cutting all branchee cloee to the main stem and not leaving "etube," keeping the center of the tree open, and preeerving the general ehape of apricot trees as grown in this vicinity.

Especial care ehall be taken in plowing or harrowing not to knock bark off of trunks or branchee of trees nor to break off overhanging limbe.

Party of the sccond part ehall carefully pick and deliver to the buyer at the proper period of growth of the crop; or he ehall pick, cut, dry, sulphur, and cure the entire crop, or any part of it, under conditione set forth in paragraph 3.

He shall deliver to party of the first part, immediately upon receipt of same from buyer, copies of the weight tags, and buyere' price.

He shall burn all prunings without damage to the treee from fire.

If woolly aphis, apricot or brown ecale, caterpillars or any dieease or peet ehall appear upon treee he shall take all known methode to effect their immediate extermination at hie own expense. It ie agreed, however, that he may have free of charge, for euch purpoee, the spraying equipment of the party of the first part.

The orchard ehall be kept clear of morning glory by party of the eecond part, at hie expense, preferably by the uee of the weed cutter, and same, or any other, known and euccessful method of combatting this weed ehall be employed as often ae necessary.

(6) Party of the eecond part is grantsd free use of all farming implemente now on the property, provided he keepe same in good condition and repair, returns same promptly to implement ehede after use, and provided they are required for use by party of the firet part. Party of the second part is also granted free use of fruit boxes, trays, sulphur houses, etc., of the party of the first part, for handling the crop of the orchard hereinbefore specified, but subject to the conditions that no boxes or traye are lost, and that they ars to be carsfully washed, repaired (and replaced if broken beyond repair), and stored each year promptly after uee. Especially are ths provisions of thie paragraph to be carried out during the last year of this leass.

(7) If all of the conditions are met, and all of the work set forth in paragrapha 3, 4, 5 and 6 are performed to the satiefaction of the party of ths first part, the party of the second part is to have the privilege of renewing this lease under the same conditions (unless mutually altered) for the year 19—-19—, or for the two years, 19—-19— and 19—-19—, if the property is not sold.

(8) If, on ths other hand, the party of the second part does not psrform his work satisfactorily, if the orchard is not plowed until the ground is toe hard to permit proper depth of plowing, if it is not harrowed until it is dried out so that the lumps cannot be broken, or most of the moisture has been evaporated, if the trees are not properly pruned, or if the fruit is not picksd at the proper time, or if inexperienced men are employsd to plow, pruns or do any other work, who, by reason of their inexpsrience or ignorance or ill-will, do or may oause damage to the orchard or property or implements, or if accounts of the fruit harvested, the price at which it is to be sold, or the amount received ie not promptly (i. e. within five days) conveyed to the party of the first part by the party of ths second part, as set forth above, this agreement shall thereupon becoms null and void, providsd, however, that the party of the first part tender to the party of the second paymsnt for all work done on the orchard from the date of this agreement until the date of annulment thoreof at the rate of $3.00 per day per annum and $6.00 per day per man and team, but also provided that party of the second part deliver to party of the first part in writing each month as the work progressss an account of such work, together with the coet thereof. It is mutually understood that if no disagrsement arisee between the parties hereto during ths first year, eaid tendsr of payment is to cover work done the seoond year only, and, similarly, the third year; and the tsrm "year" is further understood to dsfins the period from ................ to ................. of conssoutive yeare.

(9) Inaemuch as the party of the first part is a member of ths Pruns and Apricot Growere' Association, it is hersby expressly stipulated tnat the party of ths second part must ssil or otherwise diepose of the crop herein specified only under the terms and conditione required by said Prune and Apricot Growers' Association, and to thsir sntire eatisfaction; otherwise this agreemsnt shall becoms null and void, as in paragraph 8.

IN WITNESS WHEREOF the said parties to thsse presents have hereunto set their hands and eeals ths day and year first above written.

(Signed) ..............................
(Signed) ..............................
Witness..........................

Here's just the Post for California Ranches

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RED TOPS hold the staples no matter how hot and dry the weather. Fire along the fence doesn't injure them. Nothing to burn, rot or break. No repairs.

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# EDITORIAL DEPARTMENT

## Timely Topics among Farm Folk

### A Hot Fight on "Bogus" Milk

"EITHER he be or we be" represents the uncompromising attitude of various branches of the dairy industry towards a manufacturer of what they term "bogus milk."

This product, made from skim-milk and vegetable oils, appearing suddenly out of a clear sky, has created more disturbance than any other comet that ever slapped its tail against the milky way.

But the manufacturer approaches the farmers with a very plausible argument about "creating a new market for skim-milk formerly wasted or used as hog feed," and answers the critics with the simple statement that the stuff is not made nor offered to the public as a milk substitute, but rather as a new creation of incalculable value to the human race.

Grimly determined, however, the dairy interests have carried their fight to the State Legislatures and thence to the United States Congress. Regulatory measures, sponsored by farm organizations and dairy manufacturers, are before that body now.

Perhaps, had this manufacturer been a bit more discreet in his methods of advertising and distribution, he might have sailed on in the starry firmament of successful industries. But present indications are that the intruder may go the way of other widely hailed comets—a flash tonight and then—oblivion.

### Tractor Men Show Fine Spirit

STANDING out as one of the big features of an epochal State Fair was this year's "Power-on-the-Farm" exhibit. And coming at a time when the tractor, implement and farm machinery industry is undergoing reorganization to meet changing conditions, the 1921 show was most encouraging.

To W. V. Freeman, president of the California Tractor & Implement Association, who managed the exhibit, is due much of the credit for its success. The entries compared favorably as to number and quality with those of previous years, while the pump department exceeded in size and interest that of any former fair.

Statistical experts estimated that the pumps shown in action actually were delivering 72,000,000 gallons of water every twenty-four hours. A special pit for handling the water was constructed, and the visitors treated to realistic, and therefore educational, demonstrations.

Several new models of tractors were shown, and it was apparent that implement manufacturers had kept pace with the trend of tractor development by bringing out improved plows and other tractor machinery, especially for use with the smaller types.

All in all, the exhibit was calculated to dispel any gloom that may have slipped into the camps of the dealers, while to the farmers (thousands of whom thronged the great tents) it spelled the return of normal times, as evidenced by greatly reduced prices. The tractor and allied industries are such an integral part of agriculture that it is most encouraging to see the fine spirit displayed by the manufacturers and dealers who "came back" stronger than ever this year at Sacramento.

### "Oh, It Doesn't Pay!"

"QUALITY" is the watchword of those who are striving to improve agricultural standards—quality in fruit, in field crops, in livestock, in poultry.

But better quality is attained only in proportion to the time, effort and money expended. Left to herself, scientists tell us, nature has a tendency to deteriorate rather than improve. And in every community are found farmers who believe in co-operating with nature—in this respect at least.

When approached with the suggestion that they strive for quality, these contented standpatters invariably make the same stereotyped reply: "Oh, it doesn't pay."

But events of the past year should have opened the eyes of such men. When small, blemished fruit, scrub livestock, cull poultry and low-grade hay and grain were a drug on the market, those who had the real "quality" products found a demand to absorb their supply.

If there is any demand at all, in fact, the first grade reaps the reward. A period of market depression is the acid test. And the lesson merely points the old, old moral: "There's always room at the top."

### Three Classes of Farmers

THERE are two equally undesirable methods for the farmer to follow. One is to do certain things simply because grandfather or father, or neighbor has done them always.

Another is to follow a set formula developed by theorists and supposed to fit all conditions. Either method is likely to result in failure. The successful farmer as a rule is the one who studies his own soil, climatic conditions and markets; who secures and weighs the opinions and advice of others and then draws his own conclusions; who invents ways of meeting changing conditions; who lays his plans ahead and follows them. In short, who thinks for himself.

Which plan do you follow?

### *Charles M. Schwab's Ten Commandments of Success*

**EVERY young man who has ambition to better himself can profit by following these precepts:**

**1. Work hard—Hard work is the best investment a man can make.**

**2. Study hard—Knowledge enables a man to work more intelligently and effectively.**

**3. Have initiative—Ruts often deepen into graves.**

**4. Love your work—Then you will find pleasure in mastering it.**

**5. Be exact—Slipshod methods bring only slipshod results.**

**6. Have the American spirit of conquest—Thus you can successfully battle with and overcome difficulties.**

**7. Help and share with others—The real test of business lies in giving opportunity to others.**

**9. Be democratic—Unless you feel right toward your fellow men you can never be a successful leader of men.**

**10. In all things do your best—The man who has done his best has done everything. The man who has done less than his best has done nothing.**

### The Butcher and the Meat Industry

IT is high time to throw the light of pitiless publicity upon the wasteful, money-grabbing methods of many retail butchers.

We look for mysterious causes for the decreasing consumption of pork, beef and mutton. Food-fadist propaganda is mentioned; an accusing finger is pointed at raisers of rabbits; the so-called "packing trust" is held by many to be responsible. But all these things are merely incidental and superficial.

The public is buying less meat because it is tired of paying exhorbitant profits to retail distributors. The housewife compares the piteously small steak or roast with the amazingly large price—and adopts a vegetarian diet.

The busy business man stops in the butcher shop on his way home. In silent wrath he watches the meat dealer weigh his hand or, at least, all the bones and gristle and then trim off the latter and throw them under the counter to be wasted or sold again as scraps for the family dog. Then he, too, pays the price and resolves, "Never again!"

GRADUALLY, BUT SURELY, THE RETAIL BUTCHERS (AS A CLASS—AND ADMITTING THERE ARE SOME EXCEPTIONS) ARE RUINING NOT ONLY THEIR OWN BUSINESS, BUT THE ENTIRE MEAT INDUSTRY OF THE UNITED STATES! They are hurting the wholesalers, the packers, the by-products manufacturers and, most of all, the farmers and stockmen.

During a period when basic prices to the producers are lower than for many years, profiteering continues on the part of these middlemen. This condition has become a national disgrace. The fabulous profits accumulated by certain city butchers during the last eighteen months would become a national scandal if made public. What, then, can we do about it?

Eventually the producers of meat may join with those of other foods in following their products through to the ultimate consumer. But this will be too late to offset the great damage already done. Meanwhile the cattle raisers of the West, the farmers and feeders, the thousands of breeders of hogs, and those who raise mutton, must suffer because of the grasping, disgraceful methods of a coterie of retail butchers.

No doubt there are honorable exceptions. But, if so, there are few to be found in Pacific Coast cities. And just now the retailers are talking of a great advertising campaign to increase the consumption of meat! May we suggest that the buying public would be much more impressed with a little evidence of good faith? If the butcher will weigh what the purchaser pays for instead of the scraps that are thrown away, the consumption of meat will increase rapidly enough.

But the public has only one answer to extortion, and that is substitution. Many families who formerly considered meat a necessity now are getting along very nicely without it, or at least with smaller quantities.

If you farmers who raise cattle, hogs and sheep want to know what is the matter with the meat industry, stand for a few moments near the counter of any metropolitan butcher shop, notice what is weighed and what is delivered, and after ascertaining the day's wholesale prices, make some calculations for yourself!

### We Don't Look Ahead

ALL about us just now we have examples of farmers, fruit growers and livestock breeders who did not provide for the inevitable rainy day.

It would seem that eventually all of us would learn ups and downs are as inevitable as life, death and taxes. Yet farmers riding upon a temporary wave of prosperity almost invariably strain all their resources to acquire more land, more debt, more responsibility, more expense.

To be sure it is only good business to keep one's resources in land, cash and credit working. But there is a danger line that never is crossed if one rule is observed, and that is always to keep a safe reserve.

How much better it is to progress a bit more slowly and be reasonably sure ,than to "spread out" to the limit when money is plentiful, only to be compelled to pass up great opportunities during the bargain times that always follow periods of great prosperity.


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CONCISE CONTRIBUTIONS

On practical agricultural subjects are invited. Unavailable manuscripts will be promptly returned if postage is inclosed. Preference is given to accounts of actual experience, telling how, when, where, who and why

# Horse Sense

By Walter H. Gardner

ONCE you had a pride in knowing
How to judge a head of stock.
You could pick the really good ones—
And you used to love to talk
Of the points that told the story—
Barrel, withers, flank and gait!
You could tell the one worth having
From the poor and lazy skate!
Mighty seldom you were cheated,
For you bought with lots of care—
And you've got to buy a tractor,
As you used to buy a mare!

Oh! you once were mighty careful
On a sultry summer's day,
Not to overwork your horses—
Not to feed 'em too much hay!
And you kept 'em under shelter
If the day was over-warm—
Tied 'em snug inside the stable
If there came a driving storm!
But your pocketbook will suffer,
And your check-book feel remorse;
If you do not treat your tractor
As you used to treat your horse!

When you hitched up in the morning
And the mule a-limping came,
Why—you left him in the stable—
Never thought to work him lame!
If he had a touch of colic—
If you found him off his feed;
Then you let him rest and nursed him—
Never mind how bad your need!
Now, when cylinders are missin',
Fix 'em first—a worthy rule!
For you've got to treat your tractor
As you used to treat your mule!

## The Railway Situation

CRITICISM of the railroads for high rates and unsatisfactory service has been so general during recent months that unusual importance is attached to the series of announcements now appearing in ORCHARD and FARM, signed "Association of Railway Executives."

Believing that our subscribers are both fair and broad-minded we urge that they give close attention to the arguments advanced by those who operate our transportation system. For with this system is linked the prosperity of all branches of agriculture.

Next month ORCHARD and FARM will publish a significant and important article upon this subject, one that is bound to interest every farmer, but in the meantime, here is a brief statement taken from a letter to the editor written by C. H. Markham, president of the Illinois Central Railroad Company:

"Ths railways do not claim that the present rates are not too high in proportion to the prices of farm products, or that these rates should be continued permanently. What they are trying to show is the reason why thess rates are necessary under present conditions of railway operation, snd what must be done to make practicable any general reduction in rates. * * * * We are frankly stating the railroad point of view, trying to set forth the facts correctly and to draw no conclusions which these facts do not warrant. All we desire is to give the farmers a better understanding of the railroad situation and the railroad problem in order that we may secure their co-operation in solving the problem in a way that will be beneficial to all concerned."

After reading carefully the announcement in this number of ORCHARD and FARM, our subscribers are invited to correspond with the executives of any of the Western roads or with the office of the association, 764 Transportation Building, Chicago. The railway officials assure us that any questions or arguments submitted will be considered carefully and answered promptly.

Local problems, however, are best solved locally. Therefore the editor suggests that any reader who wants to know about any question affecting the transportation of his products, submit questions to the Editor of ORCHARD and FARM who in turn will [illegible] any executive to [illegible] the question.—J. C. K.

# How Can the Farmer Prosper Unless the Railroads Prosper?

THE development and prosperity of farming in the United States have in the past gone hand in hand with the growth and development of the railroads. Ahead of or beside the courageous pioneer has gone the railway.

The railway is dependent on the farmer for the tonnage which enables it to live and conduct its business. Likewise the farmer is dependent on good and adequate service by the railway as the means of getting his products to the markets of this country and the world under conditions which will enable him to prosper.

**Railway Development at a Standstill**

The development of the railways has been practically at a standstill for some years. No industry can grow unless it can get people to put new capital into it. No industry can get people to invest capital unless it can pay a return on this additional capital.

Stagnation in the railroad industry is a menace to the farmer. The products of the farms are constantly increasing. Without increased means of transportation these increased products of the farms cannot be carried to market.

**The Earning Power of the Railroads Was Practically Destroyed During the War**

They are now trying to get it back. They want to get it back so they can provide additional locomotives and cars to handle the increase in traffic and provide for the future development of the country. They must raise large amounts of new capital to provide these facilities.

**Not Asking Return on "Watered Stock"**

Every farmer and business man knows it is impossible at present to borrow large amounts of money for even 6 per cent. How can the railroads be expected to raise new capital for new facilities if they are not allowed to earn at least 6 per cent, which the Interstate Commerce Commission has held they need

Is this 6 per cent on "watered" stock? No. It is not based on stock at all, or on bonds either. It is based on the minimum value of the property which the railways devote every day to the public service in transportation—tracks, stations, locomotives, cars, shops, and so on. This valuation has been made by the Interstate Commerce Commission under the Valuation Act fathered by Senator LaFollette of Wisconsin eight years ago.

It is not based on what it would cost to rebuild the railroads at present high prices of materials and wages, but on what it would cost to rebuild them at prewar wages and prices as they **stood in 1914**. A valuation based on present wages and prices would be twice as great.

Some railroads are "overcapitalized." Many, including most of the big systems, are undercapitalized. But neither in the one case nor the other does this affect the basis on which rates are made.

**What Regulation Can Not Do**

The farmer has just lost a friend and the country a valuable citizen by the death of ex-Judge C. A. Prouty. He was for seventeen years a member of the Interstate Commerce Commission. He was in charge of the valuation of the railroads from the time it was begun until his death. He said:

**"We can regulate the railways. We cannot by legislation force one single dollar of private capital into railway investment against its will."**

The farmer, by favoring regulations that will help the railways to regain their reasonable earning power, can help them to attract hundreds of millions of dollars needed for rehabilitation and enlargement of railway facilities and for increased and improved transportation service to the farmer.

**The further development of the country will be arrested and the farmers and all other classes seriously injured unless the railways are given opportunity to raise the capital needed to enable them to make their service better and more adequate.**

## Association of Railway Executives

61 BROADWAY NEW YORK — 764 TRANSPORTATION BLDG. CHICAGO — MUNSEY BLDG. WASHINGTON, D. C.

*Those desiring further information on the railroad situation are requested to address the offices of the Association or the president of any of the individual railroads.*

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Inferior nursery stock at any price is too costly. Good trees at prices that are too high is extravagance. But when you can buy the very highest grade of trees—clean, healthy, vigorous stock, budded from trees of known productiveness—at our low prices, then you are making a wise investment.

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| Fig | Plum | Grapes | Berries | All Small Fruits |
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ALSO—WE SPECIALIZE ON NUT TREES, particularly the famous Payne Seedling, the most profitable commercial walnut on the market today. Tell us how many trees you want, state the variety, and get our quotation, together with the special "Early Order" offer.

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This view shows the narrow construction of the Orchard Disc Plow and the absence of any projecting levers or other parts.

All LA CROSSE Disc Plows are equipped with their wonderful disc bearings which have been used for years. These bearings have no equal for wear. They are of the chilled ball and socket type, run freely and are easily oiled.

The branches on orange and lemon trees are very low, owing to the system of pruning in use, and this makes it essential that the plow must have no levers or other projecting parts to injure the fruit or trees.

The rear wheel is made so that it casters freely when the plow is raised, but is held rigid in the correct position when the plow is at work. This wheel holds the plow to its work and never allows the rear end to swing.

The depth of plowing is controlled by screw cranks conveniently placed on front of the plow. These screw cranks take the place of levers and are very easily operated for changing depth or leveling the plow.

The power lift on this plow is operated by the land wheel. The mechanism is very simple and strong and cannot get out of order. A pull on the cord causes the plow to raise and another pull lowers the discs into plowing position.

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3 Disc, 26 in.

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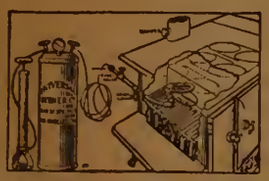

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# "BOB" JONES' CORNER

## Little Stories of Farming

By ROBERT E. JONES

Contributing Editor for Central and Northern California

**The Placer Hills**—Placer County is almost an enchanted country. Those rolling hills, once brush covered and studded with outcroppings of granite, have been transformed into an orchard garden spot. With some friends I recently visited the farm of Rufus Struble at Penryn, who grows all sorts of deciduous fruits for shipping and some oranges for home use.

His house, on a knoll overlooking the Sacramento Valley, is in a clump of native live oak. Struble cultivates the steep hillsides and, while this presents some difficulties, he is rewarded by air drainage which gives him immunity from frost. In 27 years he has had no frost damage on his home places. Through hard and intelligent work, Struble has prospered in the fruit business, but he can look back upon the days of "red ink." His marketing problem has been solved by the California Fruit Growers' Exchange. Struble has so "built" his orchard as to save labor. For instance, his cherry trees have been pruned so that the limbs spread out close to the ground and it is possible to pick much of the fruit without ladders.

His irrigation system, too, was worked out to save labor. Permanent ditches deliver water to advantageous points from which it trickles down the slope along the tree rows. He has added to his holdings recently some adjoining fruit farms. Placer people have a way of giving their farms attractive, homey names. These are the names of the Struble places: "Wildwood," "Inglewood" and "Alta Vista," and they are homey places, indeed, for six youngsters as well as their parents, have learned there the wholesome happiness of country life.

**Interplanting Walnuts**—Dr. W. W. Fitzgerald of Stockton, who is a walnut grower and known throughout the Pacific West, has developed a plan for interplanting walnuts, which involves new ideas. He is a great supporter of the Eureka variety for the interior of California and states that he plants these 60 x30 feet and as it takes seven or eight years for them to become a full bearing tree, the land between the trees may be used for other purposes. Instead of interplanting with peaches or almonds, however, Dr. Fitzgerald interplants with the Payne variety of walnuts, which is precocious. It comes into bearing in five years and bears so heavily that it does not last very long. In fact, Dr. Fitzgerald says that after five or six years of bearing the nuts become very small. "The tree literally bears itself to death," he says. In the meantime, the Eureka trees have become so large that they take most of the land and the Payne varieties are pulled out. For the first two or three years, Dr. Fitzgerald also believes in utilizing the soil between the trees for some annual crops, such as beans.

**She Brings In the Cows**—In the country, children learn to be self-reliant and helpful. Somehow the freedom of the open gives them courage and initiative that does not come so early to the city child whose life is filled with such defensive activities as dodging automobiles and street cars. On the farm of Frank Edgar, near Loomis, Placer County, little Rose Edgar, 9 years old, came tearing across the barnyard at a gallop on a pony when I visited there recently. She was just a mite of a child. "It's time to go after the cows now," her father told her. I asked how many cows she was to get and he said about 18 head. She was to ride through the brushy canyon for a mile and then up over the ridge two or three miles away, herd the cows into a band and bring them home. Imagine a city woman thinking of her 9-year-old daughter doing such a thing as that.

**Barnhill, the Vigilant Writer**—O. H. Barnhill, associate editor of ORCHARD and FARM, is one of the most capable two-handed gleaners of farm news stories and rural human interest articles and practical hints I have ever met. Barnhill strayed out of his Northwest a few weeks ago and came down into the Sacramento Valley to see a rice farm he has in Butte County. We spent some time together and saw a good deal of the country. He travels with a note-book on his hip and a camera slung over his shoulder so that no vagrant farm hint or news story can escape him. Barnhill even found farm stories while driving through the residence section of Sacramento. Even when he was a boy Barnhill wanted to write, but somehow he became an Iowa farmer. He knew both E. T. Meredith and Henry Wallace, the two publishers, who became Secretary of Agriculture successively, in Iowa while they were struggling to make a success at publishing farm magazines. Barnhill wanted to try out farm journalism then, but he kept at the plow, farming in Iowa, Montana, Washington and Oregon, before he took up writing as his principal vocation. But in those years of experience he gathered much practical knowledge that is proving worth while to ORCHARD and FARM readers today.

**Steve Baker's Story**—Stephen Baker, who came to this country from Serbia many years ago, is now a horticulturist of Fresno County. Baker's life should be interesting to every man who comes to this country from the foreign lands and to Americans as well. He came practically penniless but with a keen intelligence and a desire to work and get ahead. Arriving in New York he cast about in the coal mines of Pennsylvania and in the fisheries of Puget Sound and eventually was a restaurant hand in San Francisco before he finally found himself on the land in California. Baker early embraced American ideals and became a citizen. He had heard of California as a boy in Serbia, the California of gold, but his gold mine in this state proved to be horticulture. He is a wealthy man today in the world's goods because he has farmed untiringly and intelligently. This is a sentence from Baker's philosophy:

"You cannot make a bed of straw and sleep on feathers."

Some time ago a priest from Serbia called on Baker and asked him what message he should take back to the people over there.

"Help them to see the way," said Baker. "Over there you tell the people to pray for rain to moisten their crops. Over here we build a dam in the stream and carry the water out onto the land to grow our crops. We don't have to disturb God about this. He can rest until 10 o'clock if he wants to. Don't tell the people about the terrors of hell and the blessings of heaven. But try and teach them how to live. Help them to see the way."

Baker is responsible for the introduction in this country of the famous Fresno Beauty grape, a blue

variety from Serbia. He brought from Serbia twenty cuttings in 1896. Seven of these grew and now there is an area of 800 acres planted to this variety.

**Knoll, "the Tokay King"**—Jacob Knoll of Lodi, San Joaquin County, came to California in 1908 and today he is known as "The Tokay King," for Editor Moore of the Lodi Sentinel tells me he is the largest individual Tokay grape shipper in the world. Some 10 or 12 years before he reached California, Knoll arrived in North Dakota from Russia with his family. Upon reaching that cold, Northern State, he had just $2.10 to start with. He took up a homestead, however; got some work in town to take care of temporary needs, and bucked the game hard. In a few years Knoll had made enough money raising hard wheat to sell out and come to California. In the Lodi district he bought 67 acres and planted grapes. He was hard pressed in the early days of his development work but stuck to the ship and eventually increased his holdings to 600 acres, all in grapes now. I saw him at Lodi a few days ago in the midst of the grape season, directing the work of more than 100 persons. He was shipping from three to five carloads of grapes daily from his own packing house on the Southern Pacific Company's rails at Lodi. Last year Knoll shipped more than 100 carloads of grapes and, if rain holds off long enough this season, he may equal or beat that record. The story of what Knoll has accomplished against odds should be an inspiration to any young man. He worked hard and he works hard still.

**Those Zante "Currants"**—Sometime you should get United States Department of Agriculture Bulletin 856, issued by the Bureau of Plant Industry, and read the fascinating story of the Zante grape, the "currant" of commerce, which now is being introduced into California. George C. Husmann of the Bureau, who wrote this bulletin, told me some time ago of how he spent years studying the methods of the Greeks before he learned how they brought the vine into fruiting. Zante grapes have been grown (that is, the vines had been grown) in California but they would not fruit. Not until the Greek secret of girdling the main lateral branches was learned was it possible to make the vines fruit in California. The main lateral branches are girdled year after year, the bark being cut away to the cambium layer of the branch. Several commercial plantings of Zantes have been made in California in the last few years. Greece has enjoyed a monopoly of this "currant" business for centuries. (Several articles written especially for this magazine by Dr. Husmann have been published by ORCHARD and FARM.—Editor.)

**For Settlers**—Following the now world-wide known policy of Dr. Elwood Mead of giving practical encouragement to settlers in California, the University of California has announced a course in "General Agriculture," with the special view of meeting the needs of intending settlers. This course will be given under the Rural Institutions Division of the College of Agriculture, January 2-7, 1922, at the University Farm, Davis, and will consist of lectures, field trips and demonstrations.

### WHY NOT SELL IT?

"Just like finding the money," said a thrifty farm mother of the $50 check she had just received. "I simply took an inventory of things we did not need, advertised them in Orchard and Farm, and located a buyer within a week." Turn to pages 30 and 31 and note how many are using this inexpensive method of selling or exchanging everything from day-old-chicks to ranches.

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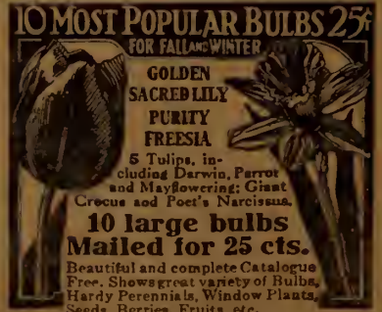


John Lewis Childs, Inc., Floral Park, N. Y.


# Carrying on With the Carob

(Continued From Page 9)

An interesting power soil auger, the invention of Lawrence Holmes, is used to prepare the soil for blasting. From one-half to two sticks of dynamite, exploded in the drill hole, breaks up the hard subsoil for a considerable distance; then the hole is opened up with a shovel, and from one to two barrels of water poured in.

Soft earth is packed around the tree, and it is protected with a wire basket to prevent damage by rabbits and rodents.

Soil tests on the Sobrante Ranch have shown the presence of more than sufficient moisture to develop the trees under less than average rainfall. However, provision has been made for tank watering if necessary, and a dust mulch will be maintained for the conservation of soil moisture. With careful dry-farming methods, it is believed no irrigation whatever will be necessary while the trees are becoming established, and preliminary experiments indicate that the long tap root soon will reach subsurface water, establishing the tree for all time.

Excavation of a bank on top of which an old carob tree had grown, disclosed a root system more than 65 feet long.

It is easy to visualize the appearance of a tract of hitherto dry land converted into an orchard of carob trees, for the leaf is large, glossy and dark green, the foliage dense and the yield of fruit heavy. A single tree of great size growing in the city park of Riverside is said to have borne from 500 to 900 pounds of fruit annually since reaching maturity, while yields of from one to one and one-half tons are reported from foreign countries, where the carob is grown extensively.

This tree, in fact, has been known to man since the earliest periods of history. It is called in Europe the "locust bean," honey locust, or St. John's bread. It appears to thrive under arid conditions where there is good ventilation, coupled with good drainage. The fruit grows in the form of bunches of pods, borne principally upon the old wood in the interior of the tree, which practically eliminates breakage, despite the great weight carried by the limbs.

## ANALYSIS SHOWS VALUE

Analysis of the pods discloses the wonderful food value of the carob, for a number of samples have shown a sugar content of almost 50 per cent, with protein to the amount of 15 to 25 per cent. The uses are multiform, and many believe will be increased in number as scientific research continues.

The pod is pleasing in taste when eaten from the tree, although its hardness indicates the necessity of grinding for the manufacture of products for human consumption. A noted breakfast food manufacturer is said to have become very enthusiastic over the possibilities for making and selling carob specialties.

The high sugar content indicates the value of the fruit for making syrup, which has a distinctive and delicious flavor, and which is regarded with great favor by manufacturers of soda fountain specialties and beverages.

## AS A STOCK FOOD

As a stock food, the carob already is established. Our importations at present amount to thousands of tons. Italy is perhaps the greatest producer and England the greatest consumer. American manufacturers, however, use great quantities in making patent foods, calf meals, poultry mixtures and other proprietary preparations.

It is said in fact, that increasing quantities are entering also into the manufacture of so-called "health foods" sold in this country.

The tree blossoms in fall and winter and the pods cure during the summer, being ready for harvest in the early fall. Timely, therefore, is the offer of the California Nurseryman's Association of a prize of $50 for the best carob shown at the October exhibition to be held by this organization in Los Angeles. Hundreds of seedling trees have been planted experimentally during recent years, and it is believed that this competition will bring out many new and valuable varieties which can be used for budding.

As to the yield per acre from mature carob orchards, an interesting comparison has been made by scientists of the University of California showing it to have a greater feeding value than barley. Estimating conservatively, therefore, that a carob orchard, six to eight years from budding should yield at the very least three tons of stock food, the crop as compared to barley, at only $30 a ton, should be worth $100 an acre.

Tempering their enthusiasm with caution, the carob boosters point out that a price of 10 cents a pound seems not unreasonable for the manufacture of carob specialties, while a much greater yield than the above may be expected, judging from past performances.

Those who are inclined to look askance at the development of the carob industry should take thought of past events. The introduction of the orange, the fig, the almond, the walnut, rice, olives, dates and more recently the avocado as commercial possibilities, was greeted with extreme mirth on the part of many "old timers."

And the fact should be borne in mind also that California, marvelous in its natural resources, enjoys an additional advantage shared by no other State in the Union; this is her readiness to adopt the valuable plants of other lands and to mother them into profitable maturity.

## A LOOK INTO FUTURE

The carob industry no doubt, like the others mentioned, will confront new problems as it develops. But it is safe to say that none has been launched with more exhaustive preliminary research or with better reason to expect success.

To the men who have given so freely of their time and money in developing the carob industry California and in fact, all America, no doubt will owe and acknowledge a great debt. Before many years in fact, a modern manufacturing city—shall we name it Carobia?—may be humming with many special carob industries, in California.

And in the cabins of the air-liners, the advertising cards probably will call to the attention of New York-to-London passengers, the delicious flavor and great food value of "carob flakes" or "St. John's mush."

"Yes, long after the story of the first commercial planting upon the [illegible] mesa of Rancho El Sobrante has been forgotten, health, wealth and [illegible] probably will be built upon the production of this Biblical tree.

### *Explanation of Illustrations on Opposite Page*

*(1) Interior view of carob nursery, where more than 40,000 seedlings have been propagated.*

*(2) Curled or knotty root development resulting from cramping in pot, after ordinary plan.*

*(3) Normal root development of seedling grown in lath "cradle."*

*(4) Left—Seedling with soil removed to show root development in lath and paper container. Center—Seedling in cradle, with soil intact. Right—Ordinary hand-saw to show comparative length.*

*(5) Seedling in field, four months from planting, showing wire protector. Straw hat indicates size of young tree.*

*(6) Unique power soil-auger, used in boring holes for blasting subsoil, prior to planting carob trees.*

# Carob Culture on a Scientific Scale

(See Explanation on Opposite Page)

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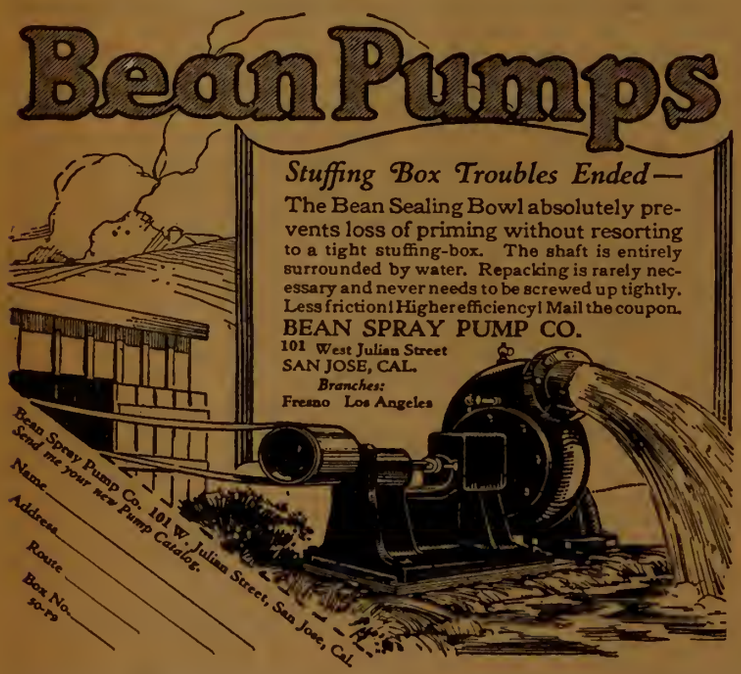

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# Timely Topics for Citrus Growers

By Robert W. Hodgson

## Lemon Men's Field Day

THE annual field day of the Lemon Men's Club was held at Upland, September 24, too late for inclusion of the report in this number of ORCHARD and FARM.

The club is composed of the leading growers and shippers of lemons. It has been largely through the efforts of this organization that many of the problems of the lemon industry have been called to the attention of the State College of Agriculture and the Federal Department of Agriculture.

The club's latest effort along this line is that of securing a plant pathologist to investigate the serious storage trouble known as "blossom end rot" or "internal decline." As a result of the efforts of the Lemon Men's Club, including financial co-operation, Dr. Elbert T. Bartholomew was added to the staff of the Citrus Experiment Station nearly two years ago and is now well along in his investigations of this costly disease.

## Growers' Organizations Essential in Solving Problems

IN this connection the writer often wonders at the rather peculiar attitude frequently expressed by farmers and fruit growers toward the various State and Governmental agencies which study agricultural problems. It seems sometimes that the investigator not only is expected to solve those problems which are referred to him but even to go further and indicate to the grower what his troubles are! Of course this is impossible.

The demands made on the agricultural experiment stations and Federal department of agriculture are much larger than can be taken care of with the funds appropriated. It is rather a question of selecting those which are of greatest importance and which merit immediate attention, eliminating all others, until results are secured.

BROAD FIELD FOR WORK

How important it is, therefore, for any branch of agriculture to have its educational associations of producers. These can aid not only in indicating what problems need investigation, but also in effecting their solution. In fact, no agricultural industry reasonably can expect close attention from State and Federal research agencies unless it be fostered by such institutions!

Leaders always, the lemon growers long since recognized the situation and through the Lemon Men's Club secured much aid in the solving of growers' problems with unmeasured profit to the members. The club therefore merits the wholehearted support of every producer of lemons in California, and also points the way to other branches of agricultural effort.

## The Old Orchard Problem

SCARCE two generations old in fruit growing, although the premier fruit State in the Union, California today is facing the old orchard problem. What are the causes accounting for the gradual decline of our older orchards? Or are fruit trees in California comparatively short-lived?

Answering the last question first, there is sufficient evidence in the way of isolated orchards here and there to indicate that apparently there is no inherent reason why at 30 years of age our orchards so generally should decline. Furthermore, we have hundreds of individual trees which, at the age of 50 or more, still are vigorous and heavy yielders. It may well be that the same climatic conditions which force our trees to early and heavy bearing also may shorten the

(Continued on Page 27)

## A Satisfactory Tree-Planting Board

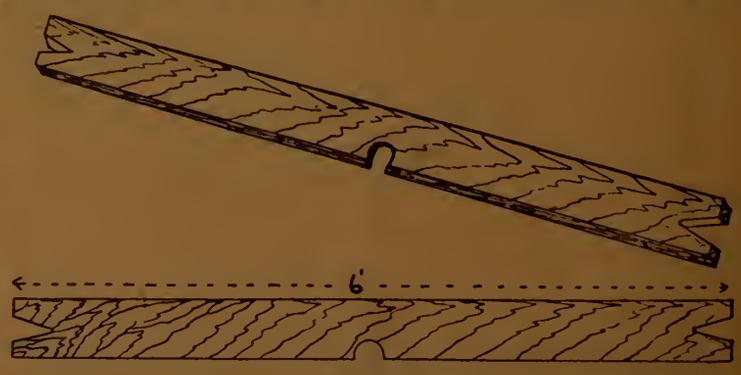
AFTER the ground is prepared for the new orchard, and the tree stakes carefully set so that they line accurately in several different directions, the next task is to set the trees so the lower part of each tree stock will stand in the same position as the stake.

This is almost impossible unless a planting board is used to place each tree in line and to regulate the depth of planting. The old plan of sighting back, forward and crosswise, has resulted in many crooked tree rows.

After the tree stake is removed and the hole dug large and deep enough properly to spread the roots, there is nothing left to indicate where the tree should be set. The planting board, illustrated, not only places the trees where the stake stood, but also gives the surface level of the ground, so that the young tree may be planted one or two inches deeper than it stood in the nursery row.

To use the planting board, lay it flat, so that the tree stake stands in the center notch. Drive two small stakes into the ground to fit in the end notches. Remove the tree stake and the board, leaving the end stakes. Dig the hole, throwing the earth to one side, out of the way of the board.

When the hole is large enough, place the planting board back into position. It is better for one man to set the trees, and it should be the man who is most interested in the future of the orchard.




The notches fit into their respective stakes. If the ends of the board are reversed, of if it be turned upside down, the trees will not be lined correctly.

Turn the tree so the largest limbs point in the direction of prevailing winds. Hold it "plumb," in the center notch of the board, and lower to the proper depth. Spread the roots naturally and fill in with fine earth, settling with plenty of water.

Two men can work together efficiently at tree planting if they follow a system that divides the work properly. —Herbert A. Shearer.

## Chestnut Growing

(Continued From Page 8)

of success in chestnut culture that there is in sections of California. Already may be found in the State a few small commercial plantings, which are doing well. For a number of years the California Nursery Company at Niles, now a part of the Fancher Creek Nursery Company at Fresno, has been experimenting with chestnuts. Many of the leading commercial varieties are planted in orchard form on this property and considerable data regarding the bearing characteristics and adaptability to the conditions in that part of California have been gathered by this nursery company.

At various times the writer has been greatly impressed with the splendid growth and productivity of chestnut trees, growing throughout the foothill regions of the Sierra Nevada mountains, especially in Lake, Nevada, Placer and Eldorado counties. And while most of these trees are Japanese varieties, there is no doubt but that European varieties will also do well under California conditions.

Illustration, Courtesy Armstrong Nurseries.

*American Sweet Chestnuts Photographed at One Year In the Nursery Row*

MARKET DEMAND LOOKS GOOD

With the chestnut industry practically annihilated in the Eastern States because of the ravages of bark disease, the market for the chestnut should be exceedingly brisk for some time to come. In sections of California where it has been demonstrated that this nut will thrive, commercial plantings would seem to be justified at this time.

The most careful watch should be kept of all plantings, in order to prevent introduction of the blight. All trees suspected should be reported to the State Quarantine Officers of the Department of Agriculture. The success of the industry in California, should it assume proportions which now seem probable, will depend upon keeping out this disease which has brought ruination elsewhere.—G. P. W.

## Mac Is Convalescing

SINCE I wrote that piece on "Bed-eprings,"
I've been laid up on my back—
Had a bad spell of bronchitis—
Yes, a pretty tough attack.
But now I'm gittin' stronger—
Appetite is comin', too.
But I've read until my eyes ached.
Wife won't let me up and do.

DID I say a bed was dandy?
Awful tired of this one now!
Ruther write an Ode to Hoein'—
Ruther go an' milk the cow.
Beds is all right in the night-time,
Or for nearly-dyin' men,
But a bed for steady diet—
Well, that's "somethin' else again!"

M. B. MacPherson.

(Recently in Orchard and Farm, Mr. McPherson extolled the "good ol' bed." Now apparently, he has changed his tune.—Ed.)

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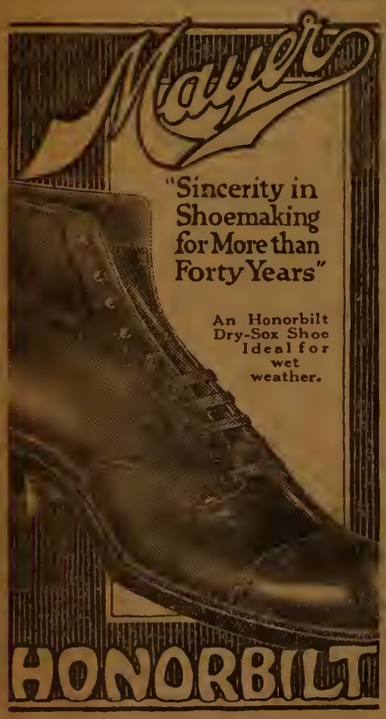




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# Pertinent Poultry Paragraphs

BARLEY sprouts in about two-thirds the time required for oats and in one week makes three to four times as much growth as oats. Instead of placing the grain four inches deep in the bin, spread it only one to one and a half inches deep and let it grow a few days longer. It is well to wet the grain twice daily.

A coop for sitting hens may be fastened to the wall of each pen in the poultry house. This coop should be constructed to hold about six hens. It may be hung in such a way as to be easily removed, and being high off the floor, may be cleaned easily.

Tar paper coops for brooding hens with chicks are quickly and cheaply made, and are light in weight so that they may be moved easily. They should be constructed with strong frames so that not over one square foot of tar paper will remain without wood support.

A cellar under the brooder house makes an ideal location for an incubator.

Much time is wasted through inefficient arrangement of the units of the poultry plant. The feed house and tool rooms should be as near the center of the laying houses as possible.

In purchasing breeding stock make sure it is from a strain free from disease for at least three generations.

One modern poultry plant uses electricity for incubating and brooding, with electric lights for winter laying and a motor to run the machinery.

A certain successful commercial poultryman buys most of the year's grain direct from farmers, saving, as a rule, several middlemen's profits. He has good storage facilities.

Have you tried raising winter broilers? Chicks hatched from September 20th to October 15th will be ready for the holiday market. As a rule at this period feed is cheaper and the market higher. Moreover, there is more time for the work in winter; and, of course, the extra money usually is acceptable.

In buying a cart to use around the poultry plant, be sure to get one that will go through all the gates; and buy an underslung type, as this is easier to load and more readily managed.

When brooding chicks, a smaller flock is usually more thrifty; 200 to 300 is the ideal number.

Many poultrymen contend that lettuce should be fed sparingly to hens, believing that it tends to keep them in poor condition by drying up the red corpuscles.

The feeding of shell in any quantity is said to hinder the moulting process. The feeding of beef scraps, corn, bran, sunflowers, hemp or millet is believed to aid in bringing the fowls through the moulting period.

Walnuts and poultry make a profitable combination. The poultry flocks enrich the soil, while the trees provide ideal shade in summer and shed their leaves in winter, thus letting in the sunshine. Moreover, the trees are far enough apart to permit the moving of coops or colony houses. Finally, the "fruit" is such that the chickens cannot injure it.

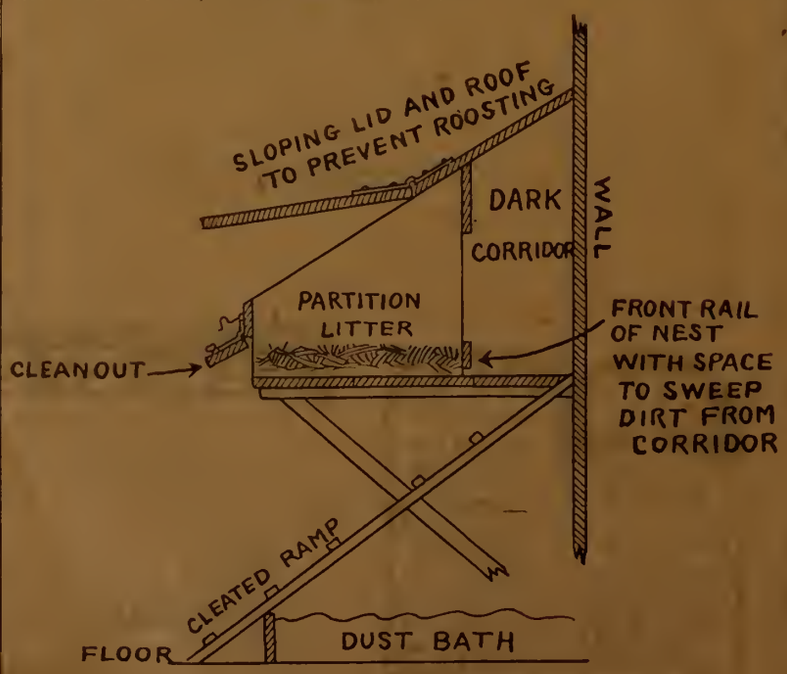
A crop-bound condition may be caused by eating coarse blades of grass. The green feed should be chopped fine. I have one case caused by eating skins from baked potatoes. A good remedy is a tablespoonful of olive oil. Massaging the crop also is advisable. If this does not bring relief, pour warm water into crop and massage. In severe cases it may be necessary to operate upon valuable fowls, and in any event it is best to feed a moist mixture such as bread and milk or corn bread and milk before turning the fowl back into the pen.

It is a good plan to cut out the market quotations of eggs and poultry from the daily papers and save them the year around. The poultryman, by studying these quotations, can gain a fair knowledge of average market conditions, this study enabling him to market his products more intelligently.—V. O. Hansen.

## Poultry Nest Construction for Cleanliness and Efficiency

THE accompanying sketch illustrates a method of building nests in a poultry house. Its advantages are ease of construction and low cost. The arrangement is such that all nests are darkened, the entrance being from a corridor in the rear, at the same time permitting easy access for gathering eggs and cleaning out.

In building these nests we found that they could be made from ordinary lumber with little waste. A dust bath was built at the bottom as indicated in diagram.—Roger Searle, Napa, Cal. (H)





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# Pointers for October

By Bill Brahma

AMONG the young stock of pullets there will be some "flighty" ones, and a quick entrance into the yard frequently will start a panic. Be quiet in your movements. Stand near the yards so that they will be accustomed to your presence, and in a short time this trait can be overcome.

Add more sunflower seed to the rations of moulting stock than will be found in the scratch food. If you do not use commercial scratch, give the sunflower seed with other grain. This seed contains especially beneficial properties for the moulting fowl.

All poultry houses should be in good condition for the coming season by October. Do not wait until a heavy rain floods the place because of a leaky roof. Dampness does more harm than cold.

Your stock of medicines need not be expensive: Permanganate of potash for a disinfectant, a small jar of carbolized vaseline, a package of epsom salts, and some commercial sodium fluorid for vermin, or some good lice powder. Another useful remedy is castor oil for crop bound condition or bowel troubles.

It will pay you to give the inside of all poultry houses a coat of whitewash. This not only makes them sanitary, but helps to eradicate lice and mites.

Make provision for a good supply of green feed. As the season grows later natural green food becomes less plentiful and it is very essential that all chickens have a good feed of some kind of green stuff every day.

## Bill of Material for Small Poultry House

A SMALL house, big enough for any number of birds up to 25, can be built 10 feet long, 7 feet wide, 6 feet 2 inches high in front, and 4 feet high in the back. It is recommended by the United States Department of Agriculture, because it can be used for breeding purposes or for egg production. Such a house will require this bill of material:

| Description of Material | Feet B. M. |
|---|---|
| 2 pcs. 4x6, 12 ft. long, for sills..... | 48 |
| 3 pcs. 2x4, 14 ft. long, for joists.... | 28 |
| 3 pcs. 2x4, 16 ft. long, for rafters.. | 32 |
| 13 pcs. 2x4, 12 ft. long, for studs and braces ..... | 104 |
| ⅞-in. matched flooring for floors and sides ..... | 340 |
| 1-in. sheathing for roof..... | 100 |

Also 1 roll of roofing paper, 2 windows, wire for windows, hinges and nails.

Common boards, 1 inch thick, may be used instead of matched flooring for inclosing the house, but in that case battens should be used over the cracks. Boards as wide as possible should be used, as the wider the boards the fewer the battens required. The battens are somewhat cheaper, and just as satisfactory, although the house will not be quite so attractive.

## Breed Terms Defined

THE American Poultry Association defines different grades of poultry as follows: "Standard Bred," conforming as closely as possible to the poultry standard of perfection; "Thoroughbred," well bred fowls having the necessary fine points, but not essentially standard; "Purebred," a regular breed without mixture of other blood outside of that particular breed; "Cross-bred," product of parents of different breeds; "Half-breeds," offsprings of cross-breds; "Mongrel," mixed breeds or those having less than half pure blood of either parent; "Scrubs," not only mixed in blood but inferior specimens as well.—B. B.

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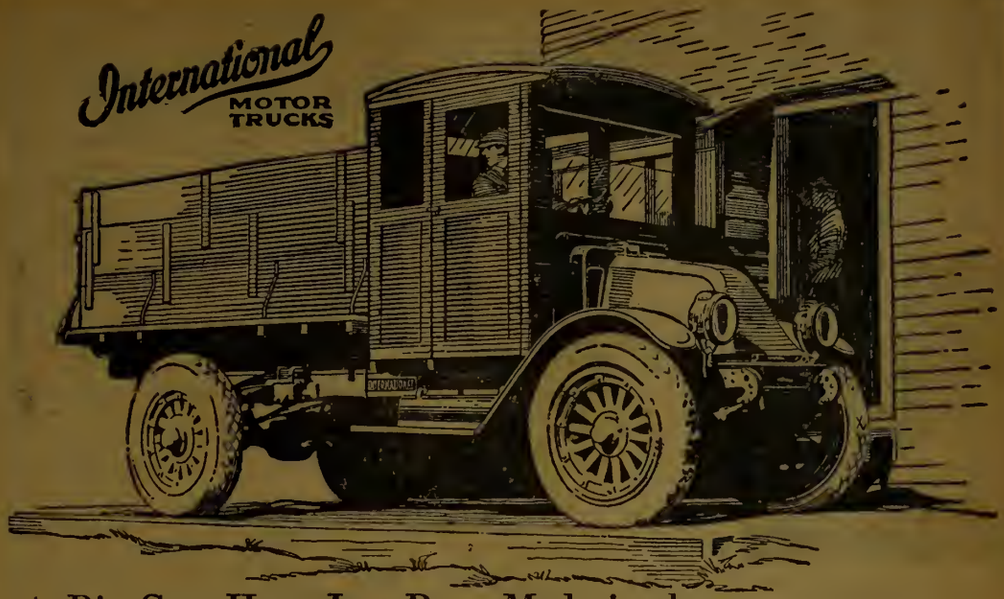
"Just like finding the money," said a thrifty farm mother of the $50 check she had just received. "I simply took an inventory of things we did not need, advertised then in ORCHARD and FARM, and located a buyer within a [illegible] [illegible] page 30 and 31, and [illegible] are using this inexpensive method of selling or exchanging [illegible] hicks to [illegible]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The Harvester Company has been working very long and intimately with farming and farm problems. Its products are practical and successful farm machines. It has built a good reputation among farmers out of 90 years of experience. Because of that, we ask you to rely on the International Motor Truck. Write us for the address of the nearest distributor.

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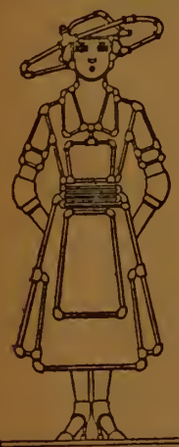

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# Is Your Banker Tractor-Wise?

By W. H. Gardner

PERHAPS there were a couple of hundred tractors in California in 1910—and the value of farm lands (including buildings) then was $51 per acre.

The 1920 census, on the other hand, shows a farm land value of $104 per acre—and there are now nearly 25,000 tractors in the State! It would seem, in all fairness, that power farming had paid—and paid well!

But have you gone into a bank during these last few months and said, "I want the money to buy a tractor"?

MARRIAGE VS. TRACTOR BUYING

When daughter blushingly confesses, "Daddy, I want to get married," does father exclaim "What for?" Of course not! He smiles back a kindly and quizzical "To whom?" For he knows that the home-leaving is inevitable, and he is chiefly concerned with the qualities of the man to whom she is entrusting her future happiness.

But does the benignant banker smile and say, "What sort of a tractor?" Sometimes—and sometimes he scowls and demands "What for?" in the same tone that an irate father of a certain type might exclaim: "Get married! Why don't you stay home where you're gettin' three square meals a day and a new dress every spring? And who is going to wash the dishes when you are gone?"

For there are a few bankers—and thank goodness they are in the minority—who can't see beyond the primary fact that the money paid out for a tractor leaves the community. They forget that it will come back some day with a lot of grandchildren in the shape of growing profits! For these few bankers have found out that tractors are like sons-in-law—some kinds will work and some won't!

But marriage can't be condemned because of an occasional scapegrace bridegroom. The banker should not withdraw his support from the tractor industry simply because he was foolish enough to accept a bad risk on a flimsy "orphan" machine, spawned in the days of the war-boom, or because he has been stung on something that was hidden behind the price appeal.

DIFFERENT BECAUSE ALIKE

The silhouette of any standard make of automobile appears very much like that of any other—but no two tractors cast the same shadow or have exhausts that bark in the same key. It is most obvious that with such great variation in size and design there is sure to be a marked difference in efficiency and life.

The modern banker in an agricultural district already is a student of human nature, as well as a bit of a lawyer and a trained business counselor. And he should be also an engineer.

BANKER NECESSARY FACTOR

And it is right that you should interview your banker before you order a tractor. He knows the state of the cash in his vaults, the condition of your credit and the sort of a moral risk that you are. And more than that—he probably has a shrewd idea of the real worth of your land and can guess as well as any one what the market is going to be for the kind of a crop that you are raising. By virtue of this knowledge he takes it upon himself to grant or withhold the necessary cash.

But—funny, isn't it? The name of the tractor that you have about decided on hasn't been mentioned — just the amount of money involved. At least the problem usually was so settled in the not distant past.

But bankers now are beginning to realize that there is evidence that must be collected and weighed before a fair and unprejudiced decision in the matter of purchasing a tractor can be made.

There are ranches where the huge crawler machines of Western manufacture are sure to succeed; there are certain sidehills where it would be folly to use anything but the horse. There are vineyards where the lightest and cheapest of tractors may be the best buy—and there are still other vineyards where it is economy to buy powerful machines to wipe out the whole width of the row at one time.

There are dusty fields where it seems prudent to buy round-wheel machines, and there are farms that will swallow up any but the track machines of greatest tread area. There are orchards that must be equipped with an eye to a deep job of subsoiling at least once a season—and there are others where the ability to cultivate at high speed is the prime requisite.

An engineering question after all! Yet the banker, his fingers entwined in the purse-strings, has the power to make the decision. And it is unjust to turn down the worth-while tractor—and mighty poor business to encourage the incompetent.

Be sure that the banker is well sold on the particular tractor you have picked out before you get down to the making of the financial arrangements! A chance to co-operate with your local dealer!

***The Dealer "Sells" the Farmer—Must the Farmer Sell the Banker?***

***No doubt many Orchard and Farm subscribers who are in the market for new tractors have been unable to buy because of the restriction of credit. However, the right sort of co-operation between dealer and prospective buyer may win over the financier, to the ultimate benefit of all concerned. Here are some practical suggestions and interesting comparisons by a man who has "grown up" with the tractor industry. His article is unusual—and timely.—The Editor.***

## Tractor Efficiency

ONE of the most remarkable tractor achievements yet disclosed, was published recently in the Dallas (Texas) Morning News. The item tells how near Hale Center, in that State, a farmer attached a combined harvester and thresher to a 10-ton caterpillar tractor with which kaffir corn was cut, threshed and delivered into wagons.

This in itself is not so remarkable, but the story goes on to say that behind the combined harvester and thresher was a disc plow preparing the land for another crop. But most interesting of all was the fact that this enterprising power farmer brought up the rear with a drill, planting wheat in the soil which had just produced the kaffir. Thus, at a single operation, one crop was harvested and another planted.

Who says the science of agriculture does not progress?


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**Noted for It's Smoothness and Evenness of Fit**

For strong, smooth, perfect-fitting well casing, specify Madewell.

—Made from Hard Red or Galvanized sheet metal.

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# Southern California Fair

**Riverside, Oct. 11-16**

**The Farmer's Fair**

Great Agricultural Exposition and Livestock Exhibit

HORSES, CATTLE, HOGS, SHEEP.

Largest Goat Show Ever Held

POULTRY, RABBITS, A. K. C. DOG SHOW

**Tractors and Automobiles**

**RACING**

Biggest Racing Program on Coast's Fastest Track

BIG DATE DISPLAY AVOCADO SHOW

U. S. Department of Agriculture
State Department of Agriculture
Will Have Displays

**$32,000 in Prizes**

**RIVERSIDE**

October 11-16



FREE to Car Owners, Garagemen and Mechanics. Send today for FREE COPY of the American Automobile Digest. Contains helpful, instructive information on overhauling ignition, carburetors, storage batteries, wiring, adjustment, repairing, etc. Profusely illustrated. AMERICAN AUTOMOBILE DIGEST, 606 Butler Bldg., Cincinnati, Ohio.

## State Fair Review

(Continued from Page 6)

attracted much attention. It has an overhead valve motor and is featured by the sturdy construction so long associated with the larger and older Holt models.

The new Cletrac model also attracted crowds. Smaller than the standard Cletrac, it is said by one of the distributors to develop so much power that it may supplant entirely its larger brother. Perhaps its most interesting attribute is the oiling system, which is complete and automatic, every moving part being enclosed and protected, yet sufficiently lubricated.

Probably the most epochal feature of the Cletrac exhibit was a 2-row cultivator, designed for hitching in front of the new model tractor.

Yuba showed a new model 25-40, especially designed for difficult pulling and for hillside work, with tremendous power at its draw-bar. This company also had an interesting display of parts.

One of the most unusual tractor models was the new Wizard "4-pull," soon to be produced in quantity at the new factory in Stockton. The Wizard has power applied to all four wheels, and is featured by unique wheel construction, giving it, the makers claim, the traction of a track-layer with the advantages of a wheel type. The Wizard Company also had a motion picture exhibit of the tractor in action.

The C. L. Best Tractor Company showed a full line, including a new model of the 60-h. p. type. This company, as well as others exhibiting, announced a strong reduction in prices.

Other booths in the great tractor and implement show were occupied by Lytle and Patterson of Sacramento, who showed land levelers; The Hoover Manufacturing Company, potato diggers; Hardie Manufacturing Company, Hardie power sprayers; Oliver Plow Works, complete line of implements.

Cement mixers were exhibited by the Edward R. Bacon Company, while Los Angeles was represented (among other exhibitors) by the Field Force Pump Company, showing Ospraymo sprayers.

The J. I. Case Plow Works showed Wallis tractors, together with plows and implements, while Fordson dealers cooperated in an exhibit which demonstrated the Fordson attached to various implements. A number of special new Fordson implements, including Oliver plows and Roderick-Lean tools, were shown this year.

L. I. Armstrong, San Francisco, had an interesting showing of Trundnar tractors, including one stripped to show the working parts. A Rumely Oil-pull tractor as well as a special Rumely truck were entered by the Advance-Rumely Company.

The Cushman Motor Works had a very complete exhibit, including Toro motor cultivators, Throop land levelers and Cushman engines. The "E. E." tractor was featured by the Emerson-Brantingham Company. Fageol tractors and trucks were shown by the Fageol Motor Company; All-Work tractors, by the Electric Wheel Company.

The J. I. Case T. M. Co. entered Case tractors, ensilage machinery and hay balers, and Grand Detour plows. An interesting feature of this exhibit was a rice thresher.

The Henneuese tractor was exhibited by a Sacramento manufacturer. The Henneuse Company also showed an interesting track attachment for Fordson tractors.

The Russel tractor was exhibited by the Averill Machine Co., San Jose. Among the unusual entries was the "N. B." tractor, designed for cultivation and for small farm, orchard and vineyard work, which was shown by the New Britain Manufacturing Company.

Especially noteworthy were the machinery improvements. The Napp disc orchard plow was exhibited with several new features, including a removable or revolving sleeve bearing, which can be turned until worn out and renewed at small cost.

The big gopher subsoiler shown by the Killifer Manufacturing Company drew interested throngs. An improvement on this type recently was used with four 75-h.p. tractors in Sutter County for draining low land.

The John Deere Plow Company showed a new combination disc plow, which includes a special hitch and steering device. Provision is made for attachment of a subsoiler, which will penetrate several inches below the depth of plowing of the rear disc.

Another improvement in disc plows was shown by the H. V. Carter Motor Company in the new McKay orchard disc, which is featured by a complete complement of high grade bearings and a special extension hitch for plowing close to trees in orchard rows.

The International Harvester Company was on hand with a new power lift plow which may be used either as a three disc implement.

A very "good razor" was displayed for the first time. This interesting device is to replace the old-fashioned so-called leveler, the dirt road in

(Continued on Page 31)


# Plant an Orchard

*Our foothill soil and location produces a tree that for hardiness, good roots, and freedom from disease cannot be duplicated by any other section*

**Growing fruit is the best paying business in California.**

The acid test of any business is not what it will do under favorable conditions but what it will do under adverse conditions.

Even under this year's depreciated values, the orchardist with a block of **Prunes, Bartlett Pears, Apricots, Cherries, Raisins, Shipping Grapes, Clingstone Peaches, Drying Peaches, Fall Pears, Almonds, Shipping Peaches, Shipping Plums, Canning Plums,** and **Figs** will make more money than the grower of grain, hay, alfalfa, beans, rice, or the dairyman.

The trees you plant now will, five and six years hence, assure your share in the profits inherent to the California fruit grower.

The supply of trees in the State available for planting is not over 60 per cent of the trees budded last fall. **This will result in a shortage of some of the best standard varieties.**

**We offer for your planting the most complete assortment of commercial fruit varieties.**

Our trees are the best that care in propagation and efficient workmanship can produce.

Our catalogue, full of accurate practical horticultural information and suggestions, and our thirty years' experience in fruit growing and fruit marketing, are at your service for the asking.

Submit us a list of your tree wants for quotation while the varieties you desire are still available in our foothill grown stock.

Write me today.

J. E. Bergtholdt
*Sec. and Mgr.*

*Member of Bud Selection Association of California*

**SILVA-BERGTHOLDT CO.**
**NEWCASTLE, CALIF.**



**MAKE YOUR SOIL YIELD MORE**
**USE TORO BRAND**
**AGRICULTURAL SULPHUR**

This has increased crops up to 500%. It prevents wire worms, eel worms or nematodes, smutty grain and potato scab. For Lime-Sulphur solution use DIAMOND "S" BRAND REFINED FLOUR SULPHUR. For dry dusting use ANCHOR BRAND VELVET FLOWERS OF SULPHUR. Against rodents use CARBON BISULPHIDE. Write for circulars 6, 7, and 8, price list and samples.

SAN FRANCISCO SULPHUR CO.,
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We supply stock and buy all you raise. Laboratories need thousands - big money — easy to raise. Send 25¢ for Book on — HOW TO MAKE $2,000 A YEAR. —
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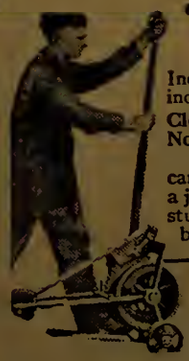
**Turn stump land into Money**



Increase your acreage and thereby increase your income.
Clear your stump land cheaply.
No expense for teams or powder.
One man with a HAND POWER **K Stump Puller** can outpull 16 horses. Works by leverage—same principle as a jack. 100 lbs. pull on the lever gives a 48-ton pull on the stump. Made of the finest steel—guaranteed against breakage. Endorsed by U. S. Government experts.

Write today for special offer and free booklet on Land Clearing

Works equally well on hillsides and marshes where horses cannot operate

The Fitzpatrick Products Corp.
Box 25, 99 John St., New York
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*A Market Awaits You*—If you would dispose of real estate, livestock, poultry, machinery, a second-hand tractor or any article you don't need, simply insert an ad in ORCHARD and FARM'S "Classified Market Place." The cost is low. See pages 30 and 31.

# Price Reduction

Now $1.25

In every size and over-size up to 5 inches

## McQUAY-NORRIS LEAK-PROOF PISTON RINGS

REG U S PAT OFF

The largest sales in our history have made it possible to lower the price of the genuine LEAK-PROOF Piston Rings to below pre-war price.

Can you afford to have poor piston rings wasting power and gas when your repairman or dealer can supply genuine LEAK-PROOF Rings for $1.25 each—with Supercyl Rings for the top grooves at $1.00 each?

For those who want a lower-priced installation—a one-piece ring—nothing in the low-priced field equals the Jiffy-Grip Ring. It has an improved "non-butting" joint, and its velvet finish "seats in a jiffy."

All McQuay-Norris Piston Rings are made of the famous McQuay-Norris Electric Metal.

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*Write for Free Booklet*

"To Have and to Hold Power," which explains why Supercyl and LEAK-PROOF Piston Rings will increase any gas engine's power, save gas and decrease carbon. Address Dept. A-K

$1.25 $1.00 50¢ and Snap Rings

# NOTICE

## TO FRUIT GROWERS

WE have just purchased the Placer County Nurseries located near Loomis, comprising some 320 acres, devoted exclusively to the growing of fruit bearing trees. We will hereafter personally conduct this nursery in conjunction with the one at Niles.

We probably have the most complete stock of deciduous and evergreen ornamentals, fruit bearing trees, roses, vines, etc., in the State.

Write for Price List.

GEO. C. ROEDING, President.

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(Oldest and largest nursery in California—Established 1865)

NILES - - CALIFORNIA


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WYANT'S EYE-BRIGHT MAKES ANIMALS VALUABLE AGAIN

Painless eye treatment for horses, cattle and other animals. For cataract, moon-blindness, inflammation, sore and running eyes. Easy to use. Removes the scum following injury or inflammation. Clears and brightens. Ask your druggist or will mail direct. $1.50 E. M. WYANT, Mfgr. Los Angeles, Cal. (Formerly Waterloo, Ia.)

# YOUR GARDEN of FLOWERS

*by Helen Temple*

## House Plants (Continued)
## Fibrous Rooted Begonias

LAST month we studied the tuberous begonia. This month we shall study an equally interesting member of the begonia family—the fibrous begonia, which has become one of our most important hybrid house plants.

Helen Temple

The fibrous begonia must be planted in friable soil, enriched with oak leaf mould or well rotted cow manure. Good drainage is essential. The begonia, being a native of the tropics, needs a warm, moist situation. Therefore, it is not advisable to plant them in an exposed section of the yard, or to place the pots in a draught. They should not be planted out of doors in the interior.

### PROPAGATION

The fibrous begonia may be propagated from the soft wood tips, seed, the leaves and by root division. The wood tips should be taken during the early part of April. Make a clean cut below one of the stocky joints. Insert in small thumb-pots filled with sandy leaf mould, three-quarters sand to one-quarter leaf mould, by making a small hole about the size of the fore-finger in the soil.

Place the cutting about three-quarters of its length and firm the soil about it. Place in a warm situation, or, set the pots in a large box partly filled with manure and place a glass over the top. The manure will furnish the needed heat for rapid growth. As soon as the plant shows signs of growth, gradually toughen it, finally removing from the hothouse, or frame, and placing in a window or conservatory. Transplant to a larger pot as soon as the plant shows signs of crowding, taking care to shift with as little disturbance of the roots as possible. Always provide a bit of broken crockery or rock for drainage.

Propagation by root division is merely the division of the roots, when there is more than one plant in the pot, as is often the case of an old begonia.

The leaf cuttings should be taken in February or the first part of March. This is often practiced with the short-stemmed types of begonia. Take a healthy, matured leaf, insert the stem in warm, moist sand, pushing it down so the leaf will lie flatly on the surface with its edges almost covered. Treat as with the wood tip cuttings. The leaf will take root around the edges and send up shoots. These tiny plants then are cut from the old leaf and potted, treating them in the same manner as the other little begonia plants.

### CARE OF BEGONIAS

It is hardly necessary to give directions for the cultivation or care of the begonias. However, the following simple rules may be helpful: They must be provided with enough water to keep the soil moist but not soggy. Good drainage will prevent sogginess. In July the fibrous begonia usually begins blooming, continuing for several months if properly cared for. The foliage should be sprinkled occasionally, perhaps as often as once a week. After a month of blooming, pack the top of the pot with equal portions of old cow manure and leaf mould. The water poured through this will provide food for the blooming plant. It sometimes is advisable to remove a portion of the top soil before supplying the manure and leaf mould.

### BEGONIA ENEMIES

The begonia will not be troubled with pests of any kind if it is grown in a well ventilated, light situation, and the soil is fresh and clean. However, if they do become infested with red spider, as they sometimes do when grown in a close, ill-lighted green-house, wash the leaves, or spray thoroughly, with a solution of the tobacco extract. If the begonia appears stunted and pale, wire-worm or grubs may have attacked it. Any of these pests will kill the plant after a few months. Repot in clean sand and leaf mould, shaking the old soil from the roots, then place in a lighter and better ventilated situation.

### VARIETIES OF FIBROUS BEGONIAS

The tree begonia is best suited to outdoor culture, often growing to a height of nine or ten feet under ideal conditions. The begonia rubra is a hardy tree variety. The foliage is light green; leaves smooth with great sprays of scarlet blossoms. Other tree begonias are the Argentea Guttata, foliage flaked with silver; Lucerne, bronze foliage; Scandons, light green foliage with white blossoms, and the President Carnot, which has dark rose blossoms and dark green foliage. The tree begonias make excellent corner plants in the green house and also may be grown in pots successfully for a time. A few of the lower growing varieties are the fuchsiodes, odorata, rosea and floribunda. The Rex begonia has become quite popular as a window plant, being unusually bright in coloring. Another popular dwarf variety for house decoration is the Watermelon begonia. The leaves are thick and waxlike, variegated with green and white and having the appearance of being powdered with bright silver. The Thurstoni begonia is very popular for its rich appearance, being red foliaged with velvety rosy-white blossoms. The leaves are shaded from bright green to bright red, making a beautiful combination.

## Chinese Wool-flower

ALTHOUGH the Chinese Wool-flower is not distinctly a house plant, it has won much favor during the last three years, owing to its bright coloring and its hardiness after becoming well established. It is, however, very valuable as a border plant out of doors, growing to a height of two or three feet under favorable conditions. The colors are bright, clear pink and rose, and bright yellow.

### PROPAGATION

The Chinese wool-flower is a half hardy annual and should be started from seed in a hotbed or in small seed boxes placed in a sunny window as early as February in the semi-tropical regions, and not later than March 15th in the interior. This will give the seedlings a good growth before transplanting. As soon as the little plants are an inch or two high transplant to pots or beds if the weather is warm and settled. The transplanting for the house may be done without injury to the little plants at any time after they are large enough. In the interior the transplanting should be done before the first of May. These pretty, unique plants will furnish blooms from early summer until late fall.

### SOIL AND LOCATION

When grown out of doors they should be situated in a sheltered, or partially sheltered location with an abundance of sunshine during half the day at least. When they are used as house or greenhouse plants, provide a situation free from cold draughts, such as a sunny window or the sunniest section of the greenhouse, as the flowers need the light to bring out their richest colorings.

The soil should be rich, either part leaf mould and sandy loam, or sandy loam well mixed with old cow manure. Through experience I have found compost unsatisfactory. However, when mixed with the soil out of doors it often furnishes the necessary humus for the poorer soils. The Chinese wool-flower will not thrive in hard, sticky soils. Rakings of leaves, manure and compost, or leaf mould and sand well worked into the soil thoroughly, watered several times and with a fine

spading usually will convert a hard, sticky or too light soil into one of excellent condition.

## What to Plant in October

IN the semi-tropical and mild Coast regions, pansies, carnations and stocks should be sown and transplanted. Centaurea, lark-spur and sweet peas should be sown, and candy-tuft and forget-me-nots transplanted. In the interior sweet peas should be sown, and the pansies transplanted to a sheltered situation. Of the bulb family, tulips, anemones, Easter lilies, freezias, hyacinths, iris and callas may be set out in the semi-tropical, coastal and mild interior regions. In the mountainous, desert and extreme interior regions, these bulbs should be prepared for the house and window boxes. As October is one of our favorite months in the interior regions it should be devoted to garden work, preparation for winter, and planting or transplanting of the seed or seedlings that will not be killed by frosts. This will give early spring and summer flowers.

# BOYS AND GIRLS
## Their Work and Play

There are no joys like those which dwell
Within our childhood's home.
Marguerite St. Leon Loud

## Eucalyptus Curtains

I WANT to tell the boys and girls how I make spending money and also make the house look pretty. I give my brother ten cents to gather enough of the eucalyptus pods to make a pair of curtains. Then I buy some inexpensive beads and string the beads and cucalyptus pods alternately.

Sometimes I use variegated beads and again solid red, blue, yellow or green beads. The curtains are beautiful made either way—Isabel Schottland, Los Angeles, Cal.

## The Hemlock Tree

ONE of the most beautiful trees which grows high in the mountains in California is the native hemlock, many people declaring it more beautiful than the towering sugar pines. It braves fierce storm blasts almost up to the timber line. Someone has suggested that it is clothed from the ground up almost as if it needed such protection against the high altitude snows, which often bend the tree and flatten it to the ground. It is so elastic, however, that it recovers its upright position with the warm, snow-melting days of spring.

I'm bin a-visitun 'bout a week
To my little cousins at Nameless Creek;
An' I'm got the hives an' a new straw hat,
An' I'm come back where my beau lives at.
—James Whitcomb Riley.

## As Interpreted

The girl walked briskly into the store and dropped her bag on the counter. "Give me a chicken," she said.

"Do you want a pullet?" the storekeeper asked.

"No," the girl replied, "I wanta carry it."—Brown Bull.

## The Harlequin Duck

DID you ever hear of the Harlequin duck? The male Harlequin is one of the most strikingly colored of waterfowl. This duck winters on the kelp beds along the coast. When nesting time comes, however, it almost resembles the water Ouzel in its love for cascading mountain streams, the Ouzel sometimes building its nest behind a waterfall, making it necessary for the mother bird to dive through the fall in carrying food to her young.

The nest of the Harlequin has never been found in California, although its young have been taken along the Stanislaus River. The bird was seen several times last summer in Yosemite National Park, diving into the rapids, then preening its plumage on a log in mid-stream.

*Madamoiselle Dempsey*

*How would you like to have such a playmate? This will introduce Mlle Dempsey, an orang-outang, the latest addition to the Bronx Park Zoo in New York City, who already is quite at home in her new quarters and a favorite with all the visitors. Mlle. Dempsey came all the way from Halaysia, which we would consider quite a long trip, since Halaysia is in Africa.*

*Little Katherine Corey, who is seen here presenting Mlle. Dempsey with a banana as a gift of welcome, does not seem frightened at the idea of becoming acquainted.*


# WOLVERINE
## The 1000 Mile Shoe

# They Wear 1000 Miles
## Yet They're Soft as Buckskin

HERE is the *work shoe* for you! Wears like iron, yet is soft and flexible as buckskin. Always good for a thousand miles, usually for many more. It is horsehide through and through—soles, as well as uppers, but double-tanned by our secret process to the softness of buckskin.

When you feel the uppers you'll say: "My, they are thick!" Then you'll flex them between your fingers and you'll find them pliable as a buckskin glove, soft as velvet.

Not only do we use only horsehide, the best wear-resisting leather on earth—the leather with which they cover league baseballs because of its close-fibered toughness—but we use only the choicest parts of the hide, the butts, which outwear all other parts. We buy hundreds of thousands of horse hides in South America, Siberia and Australia, and tan them ourselves to make the WOLVERINE 1000 MILE SHOE. So we know that only the finest leather goes into them. To insure double wear we build them double strong.

Go to your dealer and ask him for the WOLVERINE 1000 MILE SHOE. Examine it. See how soft it is and yet how powerfully made. It is the Dreadnaught of work shoes.

WOLVERINE Comfort Shoe

Here is a lighter built WOLVERINE, so easy and flexible that you can double it up like a baby's moccasin. Wears like iron and so easy on the feet that you'll hardly know you have it on. For harvest field or shop wear buy a WOLVERINE COMFORT SHOE. Like a blessing on the feet.

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We are going to give away $1000 in GOLD to wearers of Wolverine Shoes who write the best letters on why WOLVERINE 1000 MILE SHOES wear best and longest. Write to us today—USE THE COUPON—for particulars about this wonderful contest. Contest closes November 28, 1921. Fill out the attached coupon with your name, address and name of your shoe dealer, and we will mail you the conditions of our $1000 GOLD PRIZE CONTEST by return mail. No obligation to buy.

MICHIGAN SHOEMAKERS
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Michigan Shoemakers,
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Please mail me without obligation on my part particulars of your $1000 GOLD PRIZE CONTEST on Wolverine 1000 Mile Shoes.

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Have water on your own farm. In spare time make wells for your neighbors. It means $1000 extra in ordinary years, double that in dry years. No risk—no experience needed.

**Outfits for Getting Water Anywhere**

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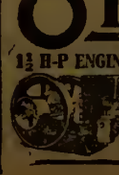

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# H. G. HUNZICKER MADE $35 STUMP LAND WORTH $200 AN ACRE

Mr. Hunzicker did this with one of our "K" Hand Stump Puller. You can make YOUR waste land worth six times what it is worth now. Our machines will work on any kind of land, no matter how hilly or wet.

U. S. Government has used "K" machines for past six years. After 10 years' investigation the highest authorities have proved that the "K" Stump Pullers, whether hand or horse power machines, ARE THE MOST POWERFUL ON THE MARKET. And every "K" Stump Puller is GUARANTEED for 3 years. We have a special price to offer you if you write NOW for free hook explaining how you can actually make big profits in just a few hours through land clearing with our "K" Horse or Hand Power Machine.

Address me personally. You deal direct with me.

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SEALED 5-GALLON CANS $5 EACH

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L. SONNEBORN SONS, INC.

Los Angeles, Cal.



**Statement of the Ownership, Management, Circulation, etc., Required by the Act of Congress of August 24, 1912, OF**

# ORCHARD *and* FARM

Published Monthly at Los Angeles, California
FOR OCTOBER, 1921

COUNTY OF LOS ANGELES, STATE OF CALIFORNIA, } SS

Before me, a Notary Public in and for the State and County aforesaid, personally appeared W. Tyler Smith, who, having been duly sworn, according to law, deposes and says that he is the business Manager of the Orchard and Farm and that the following is, to the best of his knowledge and belief, a true statement of the ownership, management (and if a daily paper, the circulation), etc., of the aforesaid publication for the date shown in the above caption, required by the Act of August 24, 1912, embodied in Section 443, Postal Laws and Regulations, printed on the reverse side of this form, to wit:

1. That the name and addresses of the publisher, editor, managing editor and business managers are:

| Name of | Postoffice Address |
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| Publisher, Country Life Pub. Co. | Los Angeles, Cal. |
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| Managing Editor, J. C. Knollin | Los Angeles, Cal. |
| Business Manager, W. Tyler Smith | Los Angeles, Cal. |

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5. That the average number of copies of each issue of his publication sold or distributed through the mails or otherwise to paid subscribers during the six months preceding the date shown above is 47,972. (This information is required from daily publications only.)

(Signed) W. TYLER SMITH, Manager.

Sworn to and subscribed before me this 22nd day of September, 1921.
(Seal) H. O. HUNTER, Notary Public.
My Commission Expires May 17, 1922.


# Shall We Dehydrate Grapes?


By Arthur W. Christie

ASSISTANT PROFESSOR OF FRUIT PRODUCTS, UNIVERSITY OF CALIFORNIA.


CALIFORNIA is the vineyard of the United States, supplying most of the raisins and wine grapes consumed in this country, as well as shipping thousands of carloads of table grapes to Eastern markets. Our vineyard acreage now has reached 460,000 acres, about half of which is devoted to raisin varieties. More than 85,000 acres of new vineyards were planted this year, two-thirds of which were raisin grapes, set out in the San Joaquin Valley. As the tremendous plantings of the past few years come into full bearing all facilities for profitably disposing of the tremendous tonnage will be taxed to the limit.

The California Associated Raisin Company, with its membership of 92 per cent of the raisin growers, successfully controls the marketing of this crop. Early in 1921, with a heavy carry-over of the 1920 crop and prospects for a record yield in 1921, there was considerable doubt regarding the ability of even this powerful organization to maintain its markets. However, heavy frosts coming as "a blessing in disguise," followed by unusually heavy fresh shipments, so reduced the tonnage of raisins that instead of a possible 200,000 tons, the association will handle only 100,000 tons this year. The gradual re-establishment of foreign trade also is aiding materially in disposing of the increasing tonnage.

ARE SUN RAISINS SUPREME?

"Sun-Maid" raisins, as the name implies, are dried naturally between the rows in the vineyard, after which modern packing plants stem, clean, seed and pack the raisins for the market.

Attempts to dehydrate raisin grapes have not been successful, either on a basis of quality of product or economy of production, for reasons which will be discussed later.

And despite the prediction that prohibition would "ruin" the wine grape industry, these grapes are more valuable than ever. Dehydration early was suggested as a logical form in which to market wine grapes and a considerable tonnage was dehydrated in 1919 and 1920. Much of this was of excellent quality but unfortunately this product has not found the expected demand.

WINE GRAPES SHIPPED FRESH

The fresh shipment of wine grapes has reached such proportions that practically the entire crop will be so so marketed this year, only negligible quantities being dehydrated. Nevertheless, it has been conclusively shown that excellent dehydrated wine grapes can be produced economically and may yet be the means of marketing a considerable portion of the crop.

What, then, is the present status of grape dehydration, and on what basis can the subject command the immediate interest of grape growers?

DEHYDRATION OF WINE GRAPES

Considering, first, the drying of wine varieties, it has been shown that both the red and white grapes have been dehydrated economically. But because of the high proportion of skins and seeds, as well as the juicy rather than the pulpy nature of these grapes, their use for culinary purposes, either before or after seeding, is not promising.

Excellent grape juice or wine can be made readily from dehydrated wine grapes, however, and they are much superior to sun-dried grapes for such purposes. Because of the lack of a definite market for this product and the preference of the consumer for fresh grapes when obtainable, it is inadvisable to dehydrate wine grapes in the expectation of large profits. On the other hand, should transportation difficulties, rains or prohibition enforcement curtail fresh shipment of wine grapes, dehydration offers a logical method of preserving the grapes for subsequent sale in this or foreign countries.

DEHYDRATION AND RAISINS

Dehydrated muscat raisins, identical in color, flavor and texture with the best quality sun-dried raisins, have not been produced, despite numerous attempts.

In order to simulate the sun-dried raisin it is necessary to dry muscats without preliminary dipping or sulphuring and at a relatively low temperature. This requires some 60 hours' drying time, which reduces the capacity of a plant and makes the cost of drying prohibitive as compared with the very inexpensive sun-drying. Dipped and sulphured dehydrated muscats, however, retain the color and flavor of fresh muscat grapes and do not acquire the well-known "raisin" flavor resulting from sun-drying. This dehydrated product is excellent and may find a market not necessarily in competition with sun-dried raisins.

THE SEEDLESS PRODUCT

Because of their lack of a distinctive flavor, the above differences are not so pronounced in the case of seedless grapes. If these grapes are allowed to become thoroughly ripe and yellow, they can be dehydrated either with or without sulphuring to give products equally as satisfactory as the sun-dried seedless raisins, natural or bleached.

Unripe or green colored grapes give a dehydrated product of decidedly inferior color and flavor. And owing to the rapid drying of this variety the cost of dehydration need be no greater than for sun-drying.

EMERGENCY DRYERS

The utility of inexpensive but fairly efficient rain damage dryers already is apparent to all intelligent raisin growers. Dehydration also may be of value in salvaging the late-maturing, second crop muscats and others.

The relation of dehydration to the production of table grapes is best illustrated by the experience of the American Fruit Growers, Inc., at Lodi. This concern last year dehydrated all cull grapes from the packing house, thereby maintaining the high quality of their fresh pack and utilizing the cull bunches, formerly sold to wineries at a nominal price.

Two carloads of dehydrated grapes, principally Tokays, were produced and marketed at a satisfactory profit. The dehydrator was not operated at full capacity and in an emergency such as a glutted market, car shortage, rain, etc., the ripening grapes could have been dehydrated and saved for subsequent sale. This form of crop insurance steadily is growing in popularity.

BULLETINS ARE AVAILABLE

The results of previous investigations by the University of California agricultural experiment station have been published in Bulletins 322 and 330, available upon application to the Director at Berkeley.

(Editor's Note—It is planned to conclude Professor Christie's discussion of grape drying in the November issue.)

## *Cost of Dehydrating Grapes in University Farm Dehydrator—1920*

| | PER FRESH TON | PER DRY TON |
|---|---|---|
| LABOR @ 50c per hour for dipping, drying and stemming | $4.16 | $14.56 |
| FUEL @ 8c per gal., for dipping and drying | 3.62 | 12.67 |
| POWER @ 3.7c per K. W. for motors and lights | .45 | 1.50 |
| LYE @ 7c per lb. | .28 | .98 |
| SULPHUR @ 3½c per lb. | .05 | .18 |
| TOTAL OPERATING COST | $8.56 | $29.89 |

## Citrus Notes

(Continued from Page 18)

profitable life period, but this for most varieties should not be short of 50 years.

Undoubtedly sins of omission in the nature of inadequate irrigation, fertilization and pest control have occasioned the premature decline of hundreds of thousands of trees. And abuses in pruning and spraying, too, have caused other thousands to "wear out" early in their lives.

WHO CAN ANSWER THIS?

But what causes the failing off in so many of those orchards which have been given what is generally considered excellent care and attention?

It was to answer this question that in 1915 the Citrus Experiment Station leased an old orchard at Arlington Heights, the lease contining, however, for only five years and therefore now terminated. Most interesting data had been secured; facts which an additional five-year period of investigation would have augmented and clarified. It was indeed unfortunate, therefore, that this lease could not be renewed.

INTERESTING DISCLOSURES NEAR

But it was to answer this same question that the deciduous growers went to the State Legislature in 1917 asking for an appropriation for a Deciduous Experiment Station, a demand which was met in the establishment of such an institution at Mountain View in the Santa Clara Valley. It is to be hoped, therefore, that some real light will be thrown on the situation in the near future.

Certainly this old orchard problem is of primary importance to California horticulture and perhaps it should constitute the basic note in the investigations of the State College of Agriculture.

## Frost Injury to Scalybark-Treated Trees

EXPERIENCE of last year demonstrated rather conclusively that fall treatment of scalybark-affected trees is hazardous. In many cases the bark area scraped, was killed outright by the low temperature of winter months.

It is a good plan, however, to make an individual tree inspection now, indicating all diseased trees on a convenient chart. Treat cases in the early stages of the disease and postpone treatment of advanced cases until next spring. This also will solve the bordeaux - fumigation difficulty.—R. W. H.

## Ventura County Fair

VENTURA COUNTY promises a record-breaking livestock show for the fair which will be held at Ventura, October 5 to 9.

Many entries have been received in the dairy classes, including Holsteins, Guernseys, Jerseys and Ayrshires.

In addition there will be an unusually fine and complete exhibit of Rhode Island Red poultry and the National Swiss Mondaine Pigeon show.

The horse show will include such famous individuals as C. K. G. Billings' Uhlan and the F. W. Mathieson string, including Sinbad, The Vamp and Liberty Bond. A complete Wild West show will be given daily.

One of the real features of the fair will be the agricultural displays. Ventura desires thus to proclaim its leadership as to soil fertility and superior farming methods, and it is stated that no article of less than extraordinary merit will be exhibited. "This rich county," say the Ventura boosters, "raises almost everything."

Chariot racing is to be revived, and [illegible] Clark, unbeaten charioteer and member of the Ventura Board of Supervisors will mix with Tom Mix, [illegible]tor. Racing will be at the usual [illegible] standard of the Ventura track, with $[illegible]0 offered as prizes. Three [illegible] dollars will be expended on [illegible] Livestock premiums [illegible] $15,000, and agricultural [illegible] 0 women's de[illegible] and [illegible]ments, [illegible]


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Lifting water from great depths is successfully accomplished by Layne & Bowler turbine centrifugal pumps. Several years ago Layne & Bowler startled the irrigation world by announcing the installation of a pump installed to a depth of 400 feet for the City of Glendora. This pump is still operating satisfactorily. Last year one of these pumps was installed to a depth of 490 feet on the La Fourcade Rancho. This is, to our knowledge, the world's deepest turbine lift, an engineering feat that again demonstrates the superiority of L. & B. Pumps.

These two views show the Layne & Bowler Turbine Centrigual Pump and House on the La Fourcade Rancho two miles northeast of Cucamonga, California. The pump lifts 630 gallons of water per minute from a depth of 490 feet.

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# HELPFUL HINTS for THE HOUSEWIFE

Edited by Isabel Sinclair

The Home is the Hub of the Universe

Dear Friends:

Are you drinking at least eight glasses of water a day? This is more necessary than to comb your hair or wash your face, for it is both food and medicine, according to leading health authorities.

Many bodily ailments could be avoided if more water were consumed and very often indigestion is caused by an insufficiency of water.

One should take a glass of water, or two if possible, upon arising in the morning, and one the last thing at night. A leading work on physiology points out that the extra perspiration of summer interferes with the secretion of the gastric and other digestive juices, "and so, by impairing intestinal digestion, favors constipation." Drink water enough for the extra work.

Often mothers fail to realize how important it is that babies be given water during the day, considering milk sufficient. When a baby cries perhaps it is only because it is thirsty, and a drink of fresh water, not too cold, will be all that is necessary to quiet it. One doctor tells how in more instances than one he has been aroused in the middle of the night to make a long trip to see a sick baby, only to find that all it needed was a drink of water.

I wonder how many of you, my readers, are making the mistake, whether through ignorance or carelessness, of neglecting to supply the body with a sufficiency of "Nature's Nectar." Sincerely,

Isabel Sinclair

## Pretty Aprons

ATTRACTIVE aprons may be made of sugar sacks, one sack forming an apron. At one end sew a band and strings, and finish the sides and the other end with a hem. Tatting, narrow lace edgings, or cross stitch designs will give them a festive air.—Mary L. Hootman, Puente, Cal. (H)

WHEN hemming scrim window curtains, especially those with a colored border, it is well to make the same width hem top and bottom, and alternate by running the rod through both hems, thus making them wear longer and more evenly.—Mrs. A. E. Saxton, Alamo, Nev. (H)

## Little Helps

Ventilate every room you occupy.

Sleep in fresh air always; in the open if you can.

Borax sprinkled on garbage will keep the flies away.

Finely ground red pepper sprinkled on the garden plants will discourage sparrows.

One and a half cups of brown sugar is equal to only one cup of white sugar.

Wherever a mouse hole is found place a small piece of tar paper over it. Mice dislike the smell of tar and will evacuate.

If soot falls on the carpet or rug do not sweep until it has been covered thickly with dry salt. It can then be swept up and not a stain or smear will be left.

A good way to remove wallpaper is to apply freely a solution of paste made of flour and water, to which has been added a few ounces of baking soda. After a few minutes the paper may be removed in large strips without dust or dirt.

## Delicious Raisin Pies

NEARLY everyone agrees that raisin pie is one of the most popular varieties of the great American dessert. When thinking of raisin pie perhaps one does not realize in how many attractive and delicious ways it may be varied. The following are worthy of a trial—and no doubt will earn a permanent place in the menu. They are supplied by the Associated Raisin Growers.

### RAISIN-CUSTARD PIE

1-3 box seeded raisins.
1 tablespoon flour.
4 tablespoons sugar.
1 pint milk.
2 eggs.
1 tablespoon cornstarch.

Line a deep pie tin with rich crust and bake; grind raisins, add enough water to cover, bring to a slow boil, add one tablespoon flour and one tablespoon sugar. When cool, spread in bottom of crust. Make a custard of one pint of milk and two egg yolks beaten together; as it is heated add three taglespoonfuls sugar, one tablespoonful cornstarch, mixed. When cooked remove from fire and flavor with one-half teaspoon vanilla. Pour custard over the raisins in the crust and lastly cover with beaten whites of eggs. Brown in oven.

### RAISIN-LEMON PIE

¾ cup sugar.
¼ cup flour.
¾ cup boiling water.
1 cup seeded raisins.
2 egg yolks.
1 tablespoon butter.
3 tablespoons lemon juice.
1 tablespoon grated lemon rind.

Mix sugar and flour, stir in water and raisins, and cook in double boiler until thick. Pour into this the egg yolks well beaten and cook again in double boiler for five minutes. Add butter, lemon juice and rind, cool and pour into a baked crust. Cover with a meringue made of stiffly beaten egg whites and two tablespoons of powdered sugar. Bake in slow oven until meringue is brown.

### RAISIN AND APRICOT PIE

1½ cups stewed dried apricots.
1 egg.
1 tablespoon cornstarch.
½ cup stewed seeded raisins.
1 cup sugar
1 tablespoon lemon juice.

Place the fruits and the sugar with the lemon juice in a saucepan. Beat up the egg, blend the cornstarch in this with a little cold water. Stir this into the hot fruit and let simmer for several minutes. Pour into pastry-lined tin, cover with crisscross strips of pastry, and bake in moderate oven until brown. This pie also is pleasing when covered with meringue. In this case, beat two egg whites with sugar, pour over pie after baking, return to oven and bake until meringue is light brown. When using meringue omit crisscross strips.

### RAISIN-NUT PIE

1 cup chopped seeded raisins.
½ cup chopped walnuts.
¼ cup brown sugar.
¼ cup butter or shortening.
1 cup milk.
1 egg.

Mix all ingredients thoroughly, and let come to a boil, add one tablespoon cornstarch to thicken. Line pie tin as for a custard pie, bake, then add mixture and let cool to serve. Whipped cream on top is delicious.

## Kitchen Efficiency

FOR the housewife who does her own work, the kitchen is the most lived-in room in the house, and its equipment should embody as many of the labor saving principles and contain as much modern equipment as can possibly be afforded. An old-fashioned kitchen is not hopeless by any means, for any one handy with a hammer and a few tools easily can build in cupboards, shelves, drawers and extra windows to provide plenty of ventilation.

However, in modernizing the kitchen, one should plan that each cupboard and drawer be placed where it will be most convenient and save the most steps.

The following "self-questionnaire" might suggest ways to own a more perfect kitchen:

Has provision been made for plenty of light and ventilation?

Can the finish of ceiling, walls, floor, shelves, tables and cupboards be cleaned easily?

Is there sufficient storage room for canned foods, as well as fresh products?

And have you learned what a joy it is to have the work table on castors?

IF the coffee is made without an egg, try putting a speck of salt into it after it is done. Add also a little cold water and let stand for a few minutes before serving. It will be perfectly clear and the flavor will be much improved.—M. Merkel, San Francisco, Cal. (H)

## Cottage Cheese

THERE is so much nourishment in cottage cheese that it should be used in more ways than as just a side dish. A few spoonfuls may be put in any cooked dressing which is to be used on a vegetable salad. Cottage cheese also combines well with some kinds of fruit—pineapples and oranges particularly.

Tomatoes may be hollowed out and filled with cottage cheese to which finely-chopped green peppers, celery and parsley have been added. It makes delicious sandwiches for the children's lunch box, and provides a high percentage of nourishment as well.

Serve it often, but do not make it in large quantities, as the fresh article is always to be preferred.

## Uses for Flour and Sugar Sacks

1. Dish towels.
2. Curtains.
3. Kitchen holders.
4. Ironing board covers.
5. Lining for quilts.
6. Cloth to cover table when set.
7. Under garments.
8. Side runners to protect table cloth where the children sit.
9. Bibs.
10. Laundry bags or clothes pin bag.
11. "Protector" edges for quilts.

NOTE: Rub "grease" into lettering on sacks, let stand several days, then wash.—Edith Charlton Salisbury.

## The "Silent Servant"

WHAT is the utility table? Any housewife who has used one can testify that it is the "silent servant" of unfailing efficiency in the home. Carrying the meals from the kitchen to the dining room, serving afternoon tea and helping the housewife in canning time are some of the uses to which it may be put.

Every housekeeper has to make many trips between the dining room and kitchen to set the table, serve the food and clear the table after the meal. One trip with the "utility" will set the table for a meal. And with such a device it is possible to serve the entire dinner with one trip, including the desserts, for there is a place on a lower shelf for such dishes.

In other words, the utility table makes but one trip necessary where six were required before. This "kitchen jitney," as some call it, easily can be made by the handy man or woman, as it is nothing more or less than an ordinary table, thirty inches long, eighteen inches wide and twenty-nine inches high, mounted on rubber-tired wheels, and fitted with a "rail" around the edge.

It should be finished with a couple coats of white enamel paint or may be stained any desired color. Do not forget to provide the extra shelf about half way down. The table is much less expensive than a "tea-wagon," and can be put to many practical uses.

## To Can Whole Tomatoes

SELECT firm, medium-sized tomatoes, not over-ripe; wash, but do not remove the skins. Lay aside until a sauce, made by the following method, is prepared:

Cut up and boil the desired amount of ripe tomatoes, and strain to remove seeds as for catsup. Half fill wide-mouthed jars with the sauce, and place in boiler with sufficient water to reach the necks of the jars, with a rack beneath.

When the sauce has reached the boiling point, fill the jars with the whole tomatoes, cover loosely and continue boiling for half an hour, then seal. One or two whole, green chile peppers, seeds removed, may be added if desired. Tomatoes prepared in this manner are nice for winter salads when fresh vegetables are scarce. The sauce and chile peppers may be used for cooking purposes.—Mrs. G. A. Enos, Salinas, Cal. (H)

The task that looked so difficult
When first it met your view,
Completed brings its meed of joy,
And recompense to you.
The way that looked so long and steep
Leads you to heights sublime;
The mountain view is rich reward
To those who choose to climb.
—Arthur J. Burdick.

## Delicious Sandwich Filling

MIX equal parts of grated raw carrots and peanut butter, spread between thin slices of bread. A lettuce leaf may be added if desired. This makes an especially good sandwich for school lunches as it is as healthful as it is wholesome.—George Fitzgerald, Los Angeles. (H)

WHEN preparing to cook a roast cover it with a rind saved from a piece of ham or bacon. This will save constant basting and prevent the roast from burning or drying. If ham is soaked for an hour in part milk and part water, it will fry a nicer brown and also be more tender than if parboiled.—George Fitzgerald, Los Angeles —(H)

## Repairing Rubber Goods

A PACKAGE of prepared sheet rubber, such as is used for mending inner tubes, will be found very useful around the house for repairing hot water bottles and all rubber goods. If applied according to directions the patch will last a long time.—Hugh V. Harris, Sebastopol, Cal. (H)

Note—Compare these patterns, as to price and style, with those obtainable elsewhere!

# PRETTY COSTUMES

## Selected by Isabel Sinclair.

***These costumes are simple and can be made readily by the home dressmaker from the instructions provided. Send 15 cents in silver or stamps for each pattern desired. Address Pattern Department, Orchard and Farm, 1111 South Broadway, Los Angeles. Give full name and address.***

**3740-3727—A Pretty Evening Gown**

Waist 3740 cut in six sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. Skirt 3727 cut in six sizes: 24, 26, 28, 30, 32 and 34 inches waist measure. To make the dress as illustrated will require for a medium size 4½ yards of plain and 3¾ yards of figured material 32 inches wide. Of one material 44 inches wide six yards will be required. The width of the skirt at the foot is about 2¼ yards. Two separate patterns, 15 cents for each pattern.

**3374 Lady's House Dress**

Cut in seven sizes: 36, 38, 40, 42, 44, 46 and 48 inches bust measure. A 38-inch size will require six yards of 36-inch material. Price 15 cents.

**3544-3731—An Attractive Costume**

Blouse 3544 cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Skirt 3731 cut in six sizes: 24, 26, 28, 30, 32 and 34 inches waist measure. To make the blouse and skirt of one material as illustrated will require 7⅝ yards of 36-inch material. With pleats extended the skirt measures 3⅜ yards at the foot. Two separate patterns, 15 cents for each pattern.

**3726—Girl's Dress**

Cut in four sizes: 4, 6, 8 and 10 years. An 8-year size will require 2⅝ yards of 36-inch material. Price 15 cents.

**3549—Boy's Play Suit**

Cut in four sizes: 2, 3, 4 and 5 years. A 4-year size will require 2½ yards of 36-inch material for the overalls and 1½ yards for the blouse. Price 15 cents.

**3724—Junior Dress**

Cut in three sizes: 12, 14 and 16 years. A 14-year size will require 6 yards of 27-inch material. To make as illustrated will require [illegible] yards of plain and 4½ yards of contrasting material. Price 15 cents.

**3722—Baby's Apron**

Cut in three sizes: small, 34-36; medium, [illegible] large, 46-48 inches [illegible] medium size will require [illegible] material. Price 15 [illegible]

**3312-2939—An "Up-to-Date" Frock**

Waist 3312 cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Over dress 2939 cut in seven sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. To make the waist will require 2½ yards of 36-inch material. The over dress requires 3½ yards of 40-inch material. Two separate patterns, 15 cents for each pattern.

**3722—Girl's Dress**

Cut in four sizes: 6, 8, 10 and 12 years. A 10-year size will require 4 yards of 38-inch material. Price 15 cents.

**CATALOGUE NOTICE**

Send 15 cents in silver or stamps for our up-to-date fall and winter 1921-1922 catalog, containing over 500 designs of ladies', misses' and children's patterns, a concise and comprehensive article on dressmaking; also "Some Points for the Needle," illustrating 30 of the various simple stitches. All valuable hints to the home dressmaker.

### Use Coupon in Ordering Patterns

Herewith find.....cents, for which send me the following patterns:

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Be sure to give number and size. Send orders for patterns to ORCHARD and FARM, 1111 South Broadway, Los Angeles. Be sure to sign your full name and address below.

Name .....

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Address .....

.....

# Madam!
# Do You Waste?

CAN you *afford* to waste these days? Your husband is saving in the field. Are you helping in your kitchen?

For instance, your left-over bread. Don't throw it away. Here's a healthful, delicious way to use it—and save more expensive foods.

Try this dish for your farm-help—but be sure to *use the raisins*, for *there's* the charm.

**What a Camp Cook Proved**

A California camp cook's worry recently was left-over bread. But one day he put in some raisins. The men ate all and called for more. He had to serve it twice a week. He had to *bake bread* for raisin-bread pudding after that. Many ate two helpings, and he saved on more expensive foods.

And he made a more *contented crew*. The camp soon became famous for its food, due mainly to that dish. It could always get men easily. Help *wanted* to work there. And the camp profited greatly—due to *raisin* bread pudding!

**Try and See**

Try this dish on your farm hands. Look for like results. New food like this brings new vim and energy to your men.

Let them taste raisin-bread pudding made like this. The raisins add *nourishment* as well as luscious *flavor*—1560 calories of energizing nutriment per pound. So this dish is a *man's* food, good for red blood.

Raisins are 30 per cent cheaper than formerly—see that you get plenty in your foods.

**Sun-Maid Bread Pudding**

To a pint of bread crumbs add a well-beaten egg, a cupful of milk, 1 tablespoonful of molasses and 1 cupful of Sun-Maid Seeded Raisins cut in halves. Mix well together, then stir in ½ teaspoonful each of cinnamon, salt and soda. Turn into a buttered pudding boiler and cook 2 hours. Serve with the following sauce: Beat to a cream ½ cupful of butter and gradually beat into it a cupful of sugar. Add any preferred flavoring. When it is smooth and creamy pile it roughly on a pretty dish, place it where it will get cold, and before serving grate over it a little nutmeg.

**100 Recipes Sent FREE**

There are hundred different ways to serve delicious raisin foods. We've put them all into a valuable book that you should have to help you feed your men. This book will save time, trouble and expense. You need a copy so send for it now. The book is FREE. Just mail the coupon for it.

# SUN-MAID RAISINS

Sun-Maids are the daintiest, the plumpest, tenderest raisins—made from finest California table grapes. Ask your dealer for them. Seeded *(seeds removed)*; Seedless *(grown without seeds)*; Clusters *(on the stem)*. Clean, sweet, *wholesome American* raisins, the kind you *know* are good.

See that you get the *genuine* Sun-Maid brand.

CALIFORNIA ASSOCIATED RAISIN CO.

*Membership 13,000 Growers*

DEPT. B-710, FRESNO, CALIFORNIA

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AMERICAN BLUES, 2 to 3 months, $5 per trio. GARNET HUTCHES, 3431 Garnet St., Los Angeles.

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SILVER-BLACK Flemish Giants, pedigreed, extra large, beautiful stock. Write E. W. COKELY, Rt. A, Box C, Lemoore, Cal.

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GUINEA PIGS for sale—all colors—prices right. Also will buy. Write J. E. LOVE, 1012 Brooklyn Ave., Pasadena, Cal.

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WANTED to buy—Canaries, parrots, doves, dogs, cats, guinea pigs, animals all kinds. Buker's Bird Store, 1176 Market St., San Francisco.

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### DAY-OLD PULLETS

Guaranteed S. C. White Leghorn day old pullets are a howling big success. Testimonials and references on request. Established 1912. Eureka Hatchery, 628 D St., Petaluma, Cal. Jas K. Hirst, Prop.

CHICKS EVERY WEEK—From good layers. Fall broilers pay. Pullets make layers. R. I. Reds, Barred Rocks, White Leghorns. Safe arrival guaranteed. Write for circular. Stubbs Poultry Ranch & Hatchery, P. O. Box 67, Palo Alto, Calif.

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POULTRY

DAY-OLD PULLETS

Here is your chance to get day-old White Leghorn and Ancona chicks, guaranteed at least 90 per cent pullets. We are taking orders fast for October and November delivery. We also have R. I. Red and Barred Rock chicks, but do not separate the sexes. All chicks are from strictly thoroughbred, laying stock and are hatched right and shipped by special delivery parcel post. Send for prices and get your orders in at once.

Orange County Hatchery
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ALL VARIETIES of baby chicks hatching each Monday and Wednesday. Ducklings each week. Barred Rocks, Rhode Island Red and White Leghorn pullets; prices start at $1.00 each. Send your order now for fall chicks. Price list now ready. Complete line of poultry supplies and remedies. All kinds of puppies, kittens, birds and pet stock.

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S. C. WHITE Leghorn baby chicks. From trapneeted Tancred and Tom Barron roosters. Their mothers have an egg record of close to 300 per year. We guarantee safe arrival and full count. 15 years shippers of baby chicks. Literature and prices on request. Booking orders NOW for FALL of 1921 and SPRING of 1922. HICKS ELECTRIC JUBILEE HATCHERY, Petaluma, Cal. Route 2, Box 22.

BABY CHICKS

that live and lay. Our stock best to be had, backed by our reputation. Fall pullets at sale prices. Delivery October and November. Everything for the Poultryman. Queen Incubators lead by test; brooder stoves, reliable Blue Flame Brooders.
C. E. HILL CO.,
418 11th Street, Oakland, Cal.

BABY CHICKS—Barred Rocks, R. I. Reds, Anconas, 25 chicks, $5; 50, $9.50; 100, $18; W. Leghorns (from Hoganized stock), 25, $4.25; 50, $8; 100 to 1000, $15 per 100. Chicks shipped every Monday, Parcel Post, Special Delivery, all charges paid. Established 1915. Hargett & Son, Route 2, Box A, Compton, Calif.

PETALUMA HATCHERY, established 1902 by L. W. Clark. Chicks every Monday and Thursday. White and Brown Leghorns from heavy laying free range stock. We positively guarantee safe arrival and full count of good, strong chicks and no questions asked. Send for prices and terms. L. W. CLARK, Petaluma, Cal., Box 155.

BARRED PLYMOUTH ROCKS—"Nothing better in poultry." Wonderful layers. Hens and pullets for sale; also choice cockerels that will improve your flock. Now booking orders. Have made a specialty of Barred Rocks for over twenty years; "that's why" our birds win at all leading shows. Catalog free. Vodden's Rockery, Los Gatos, Cal.

BABY CHICKS — Purebred Schlotthauer Strain Single Comb White Leghorns, bred to lay. All breeding stock carefully selected and hoganized for thirteen years to insure heavy laying and strong, hardy chicks. Guaranteed safe delivery and full count. Write for booklet. White Plumage Poultry Farm and Hatchery, Exeter, Cal.

WHITE LEGHORN BABY CHICKS from heaviest laying (Hoganized) stock. Safe delivery live, vigorous chicks guaranteed. No money in advance; pay on delivery. Prices on request. Established 1898.
MUST HATCH INCUBATOR CO.,
432 Seventh St. Petaluma, Calif.

OCTOBER—BABY CHICKS—JANUARY
Quality stock, reasonable prices, good service. Write us about our R. I. Reds, Barred and White Rocks, Black Minorcas, White and Brown Leghorns. THE MISSION HATCHERY, Box 7, Campbell, Calif.

WARD'S SINGLE COMB REDS
Win at the 1921 State Fair, 3 firsts, 2 seconds, 2 thirds, 9 specials. Reds largest class in show. Hatching eggs, cockerels and pens. WARD'S POULTRY FARM, 39-B South Lincoln ave., San Jose, Cal.

COCKERELS, White Leghorns, from 240 to 280-egg hens, mated to 250 and 280-egg type cocks. Bred for 18 years for vigor, heavy laying. Trapnested and Hoganized; McFarlane and Barron strain. A. Worel, R. D. 3, Napa, Calif.

BUFF Leghorns, the best fowl for the ranch[illegible] or the commercial egg farmer. Beautiful buffs that shell out eggs and win [illegible]. Some fine stock now ready. O. A. F[illegible]RD, Altadena, Cal.

WATCH US GROW. Fall chicks, Rhode Island Reds, B Rocks, White and Brown Leghorns and Anconas. E. W. Ohlen, Camp-[illegible] Cal.

[illegible]TMA[illegible]'S [illegible] "Lay" Barred Rocks. [illegible] CHICKS, MARCH-APRIL PUL-[illegible] Fairmead Poultry Farm, Fairmead, [illegible]

POULTRY REMIDIES

[illegible] No. 1 for roup, [illegible] 50c $1. [illegible] Los Angeles.

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prove again the merit of
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Geo. C. Roeding, Pres.

FANCHER CREEK NURSERIES
Fresno, California

## Review of 1921 State Fair

(Continued from Page 23)

one operation. The Avery Company also had a complete showing of tractors, threshers and implements.

The Allis-Chalmers Company had a good display, including their two tractor models. Of special note in connection with the tractor exhibit was the provision made for comfort of the operators. Spring-cushion seats and easier methods of control were conspicuous.

WONDERFUL PUMP SHOWING

Superior to any previous events of its kind was the pump show at this year's fair. More than 75 exhibits, valued at nearly $500,000 and installed at an expense of $100,000, made this show the greatest thing of its kind ever held in California.

Among the pump exhibitors were the Byron-Jackson Iron Works, with a complete showing of water-developing machinery of all sizes and for all conditions. The Commercial Engine Company was a Los Angeles manufacturer who showed pumps and equipment. The Bean Spray Pump Company was conspicuous for the completeness and efficient arrangement of its entries.

The Solano Iron Works of Berkeley showed sprayers, and the R. M. Wade Company had an exhibit of Wade drag saws in action. Irrigation pipe, silos and tanks were shown by the Freind and Terry Lumber Company, Sacramento.

Other exhibitors in this section were the Western Well Works, San Jose; Herzog Electric & Engineering Co., San Francisco; Superior Pump Co., Lodi; G. W. Price Pump Co., San Francisco; Pacific Engineering Co., Oakland, Van Manufacturing Co., Lodi, and California Mechanical & Electric Co., Sacramento, which showed Duro water systems as well as Pelton wheels and equipment.

Deming pumps and water systems, as well as Stover windmills and "V. K." pressure systems, were exhibited by the Crane Company. The Western Well Works of San Jose showed cut-out models of pumps and one deep-well turbine in operation.

Milking machines were entered by several exhibitors, including the Blue-Ribbon Electric, a new innovation. Delco, Willys and Alamo farm lighting and power systems were shown.

Under the direction of Professor L. J. Fletcher, educational exhibits on power farming were combined with free lectures which attracted a large attendance. Exhibitors co-operated by furnishing equipment and lecturers.

LIVESTOCK SHOW OF QUALITY

Lack of space makes it impossible to review in detail the many great features of the fair. The livestock exhibits perhaps were smaller in number than in other years, but what they lacked in quantity was made up in quality. The most impressive part of the show was the beef cattle exhibit, which was truly indicative of the great improvement made in California Hereford and Shorthorn herds, through selective and intelligent breeding, and the introduction of the world's best blood.

The dairy show was somewhat disappointing from the viewpoint of Holstein enthusiasts, but was strong in Guernseys, Ayshires and Jerseys. As for hogs, remarks were heard on every hand concerning the wonderful quality of the exhibits, as well as the complete showing for the various breeds.

The sheep show unfortunately never is as complete as the other classes, this year being no exception to the rule. But while there was little competition in some departments the stuff that was shown reflected much credit upon the breeders of the State.

Leaving the livestock exhibits and entering the great main building, the visitor was impressed first by the beauty of the County exhibits. It is safe to say that never before have these departments been so attractive and comprehensive. Each booth, moreover, was truly representative of the district from which it came, making the entire building an educational feast to the visitor, who in his tour could imagine himself for a time in the mountains, among the big trees, in the fertile valleys, the broad green fields, the mines, the fisheries or the other sections that contribute to California's wonderful diversity of production.

The women's exhibits, as well as the entries of school work, were better than ever before, and the poultry show unquestionably was as complete as any ever held in this State.

All in all, it may be said that the State Fair has improved and is constantly growing better and more important. This year, if any, was the acid test, and California, agriculturally, was not found wanting.—
J. C. K.

9 CORDS IN 10 HOURS

BY ONE MAN. It's KING OF THE WOODS. Saves money and backache. Send for FREE catalog No. B99 showing low price and latest improvements. [illegible] Folding Sawing Machine Co., 161 West Harrison St., Chicago, Ill.

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**Fill your makin's papers with P. A.**

GREATEST sport you know to pull out your makin's papers and some Prince Albert and roll up a cigarette! That's because P. A. is so delightfully good and refreshing in a cigarette—just like it is in a jimmy pipe! You never seem to get your fill—P. A.'s so joy'usly friendly and appetizing.

Prince Albert will be a revelation to your taste! No other tobacco at any price is in its class! And, it rolls up easily because it's crimp cut and it stays put. It's the best bet you ever laid that you'll like P. A. better than any cigarette you ever rolled!

And, if you have a pipe hankering, know what Prince Albert can do for you! P. A. can't bite or parch. Both are cut out by our exclusive patented process.

*Prince Albert is sold in toppy red bags, tidy red tins, handsome pound and half pound tin humidors and in the pound crystal glass humidor with sponge moistener top.*

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*the national joy smoke*



**Keeps your tractor engine FIT FOR SERVICE**

*A grade for each type of engine*

The Standard Oil ZEROLENE For Motor Cars

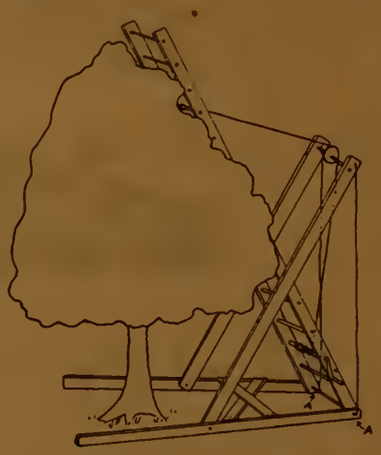
STANDARD OIL COMPANY (CALIFORNIA)


# SYSTEM
## in shop office and field

### Fruit Picking Ladder

THE sketch illustrates a substantial ladder for fruit picking which easily can be made by the home carpenter. The angle of the ladder can be adjusted to all shapes and sizes of trees by means of the winding drum, which is simply a piece of pipe bent to a crank, on which the rope is wound. A bolt or nail stuck in a hole by the crank will keep the rope from unwinding while on the ladder.

The ladder itself, being supported so high up, need not be unusually strong



as there is no great strain on it. It can be folded when not in use, and because of its triangular shape and wide base, is substantial and practically without danger of tipping. Anyone who has picked fruit with an ordinary ladder will fully realize the advantages of the one illustrated.

Small wheels may be attached to ladder at (A) making it easy to move from tree to tree.—J. B. Byberg. (H)

### Paint Brush Preserver

MANY of us are guilty of ruining good paint brushes through carelessness. The paint brush now is expensive and may be kept in good condition so easily that the following suggestions should appeal to many ORCHARD and FARM subscribers:

If the brush is to be used again in a short time, it may be kept soft by cleaning well in turpentine or oil and wrapping in oiled paper. If tied with a string it may be kept in good condition by this method for several weeks.

Many persons make a practice of standing paint brushes in a can of linseed oil, but this has a tendency to warp the bristles out of shape and the brush is apt to stick in the paint which has settled to the bottom. A better way is to bore a small hole through the handle of the brush near the base and run through this hole a stiff wire long enough to reach across the top of a large can. The can then should be filled with linseed oil until the bristles are under the surface. A film forms over the surface of this oil, protecting the contents and preventing evaporation. It is said that brushes have been kept in good condition over a year by this method.

### Effective Windshield Cleaner

CUT a piece of untanned sheepskin in a square about four inches in diameter. Clip the wool to one-half inch in length. Wet the wool side and rub it on the windshield. The grease in the wool will adhere to the glass and though invisible to the eye, will prevent particles of water from remaining on the surface.—George Fitzgerald, Los Angeles, Cal.—(H)

*An Inexpensive Type of House*

*THIS little dwelling, of unique construction, recently has been completed upon a California ranch. Its entire cost, including decorating, was less than $400. It contains four rooms in a total floor space of less than 600 square feet.*

*The most interesting feature of construction is the absence of studs or diagonal bracing. The sides and floor are made of the same material—four-inch matched pine flooring. It was nailed upright for the sides, which are held together with two-by-fours, one line of which is seen about twenty-four inches below the eaves. The openings likewise are framed on the outside with two-by-fours (not shown in this photograph).*

*The exterior was painted and the interior covered first with newspapers, glued to the bare wood and then finished with regular wall paper. The house was designed by Lawrence Holmes.*

## How to Measure Lumber

LUMBER comes usually in even lengths of 8, 10, 12, 14 and 16 feet. The common unit of measurement is the boardfoot, which is a board one inch thick and one foot square.

To compute the board feet in any piece of lumber, multiply the product of the width and thickness in inches by the length in feet and divide by 12. Round off the figures to the nearest whole number.

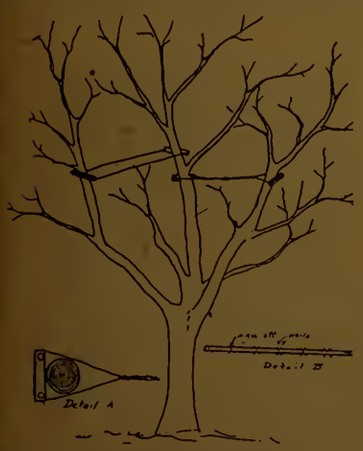
In some localities board measure is based on boards seven-eighths of an inch in thickness. In this case the unit is a board one foot square and seven-eighths of an inch thick.

The following table shows the number of board feet in various dimensions of lumber from 6 to 16 feet long:

| Length, feet | Size, inches | | | | | |
|---|---|---|---|---|---|---|
| | 1x4<br>2x2<br>... | 1x6<br>2x3<br>... | 1x8<br>2x4<br>... | 1x10<br>2x5<br>... | 1x12<br>2x6<br>3x4 | 1x16<br>2x8<br>4x4 |
| | Board feet | | | | | |
| 6 | 2 | 3 | 4 | 5 | 6 | 8 |
| 8 | 3 | 4 | 5 | 7 | 8 | 11 |
| 10 | 8 | 5 | 7 | 8 | 12 | 13 |
| 12 | 4 | 6 | 8 | 10 | 12 | 16 |
| 14 | 5 | 7 | 9 | 12 | 14 | 19 |
| 16 | 5 | 8 | 11 | 13 | 16 | 21 |

## Fruit Tree Braces

THE breakage of overloaded limbs in the fall can be eliminated if the limbs are bound together. Effective braces may be quickly made from sticks of wood, reinforced by nails (Detail B), and cut into suitable lengths.




Stretch wire between and tighten by twisting with iron rod. Detail "A" shows that only a small portion of the limb comes in contact with the brace, thereby permitting good circulation. The braces need not be removed after once put on. They save the work and time of handling props twice a year and do not hinder cultivation as do the props.—J. B. Byberg. (H)

## Handy Milk Stool

ALL persons who have milked know how tiresome it is to hold the pail with the knees, and they know also that by setting it on the floor it is too

low for comfort, besides being apt to get dirty or tipped over. The stool sketched is a convenience well worth the time and material used in making.—J. B. Byberg. (H)

## Morning-glory Eradicator

AFTER repeatedly cutting out the morning-glories that had infested my garden with no result, I poured some old automobile crank case oil over them, completely covering the roots. It proved a permanent eradicator.—Harry E. Thompson, Napa, Cal.

# A preservative for YOUR roof

Examine your shingle roof. It needs protection against the heavy weather that is coming.

## ORONITE SHINGLE OIL
### *Preserves Shingles*

Shingle roofs had a hard battle last winter. Drenching rains and sharp, whipping winds cause moisture and air to penetrate the fibre of unprotected shingles, and start disintegration and decay. The natural oils in the wood of unprotected shingles evaporate and cause cracking and warping—soon you have a leaking roof.

Use Oronite Shingle Oil—on old or new roofs to protect them against the elements, and assure longer service from them. Oronite Shingle Oil is a high-quality preservative for all shingles—on roof or side walls. It penetrates the shingle fibre with a *moisture-resisting* preservative. It retards the evaporation of natural oils in the wood and counteracts the effect of age and exposure.

An application of Oronite Shingle Oil *now* may save the heavy cost of a new roof next season. Oronite Shingle Oil will put your shingle roofs in condition to stand up under another winter's heavy rains.

A gallon of Oronite Shingle Oil will cover from 80 to 100 square feet of shingled roof, according to the age and condition of the wood. Oronite Shingle Oil may be mixed with colors to make an attractive finish. Ask our nearest agent for formulas.

STANDARD OIL COMPANY
(California)

## OTHER QUALITY PRODUCTS

especially prepared for use on the farm.

### *Oronite Roof Paint*

A high-quality protective coating for prepared roofing and metal roofs.

### *Mica Axle Grease*

Gives a durable, smooth lubricating film under every pulling condition. Keeps the axle cool; no hot-boxes, no gumming. The MICA makes it better.

### *Eureka Harness Oil*

Preserves the original strength and life of leather and keeps it soft and pliable. Keeps harness "new looking."

### *Standard Hand Separator Oil*

Correct Lubrication for your Hand Separator, under the conditions of high speed and close fitting parts.

# ORONITE *means* QUALITY

If you are planning to visit San Francisco, arrange your time so that you can be with us for the

# California Livestock and Horse Show

## October 22nd to 30th

Four acres under canvas will house the greatest livestock show ever held in this city and one of the best, in point of entries and variety of breeds, ever held in the West.

The horse show will be held nightly in connection with the livestock show.

**Twelfth and Market Streets, San Francisco**

## California National Livestock Association

**C. N. Hawkins, President** **John A. Bunting, Secretary**
**C. R. Thomas, General Manager**

# Money Maker for Berry Growers

Ralph L. Snell, Pioneer Ranaree Raspberry Grower of Mountain View, extends a cordial invitation to all interested Berry Growers to visit his Berry Plantation and inspect the

## Wonderful New Giant Everbearing La France

**Red Raspberry, in full bearing—the greatest money maker for Berry Growers**

Berries and Plants will be on exhibition at the Nurserymen's Convention, Los Angeles, October 20-26.

We are booking Orders Now for December delivery for a limited number of plants. Place your Order Now—first come, first served.

***Books Bought and Sold*—Taxidermy, Kodak Finishing—These departments indicate the scope of the "Farmers' Classified Market Place." See pages 30 and 31.**

## CALIFORNIA FLOWER SHOW *and* HORTICULTURAL EXHIBITION

**Exposition Park**
**Los Angeles**

***Oct. 20-26, Inclusive***

The most comprehensive floral exhibition ever planned. Gorgeous displays, wonderful illumination scheme. The most beautiful sunken gardens in America. Industrial displays. Many entertainment features. California's greatest autumn event. For information address

**California Flower Show & Horticultural Exhibition**

Parlor No. 7, Armory Bldg., Exposition Park, Los Angeles

## WILL RADIUM AT LAST OPEN THE DOORS OF THE GREAT UNKNOWN?

If you are sick and want to Get Well and Keep Well, write for literature that tells How and Why this almost unknown and wonderful new element brings relief to so many sufferers from Constipation, Rheumatism, Sciatica, Gout, Neuritis, Neuralgia, Nervous Prostration, High Blood Pressure and diseases of the Stomach, Heart, Lungs, Liver, Kidneys and other ailments. You wear Degnen's Radio-Active Solar Pad day and night, receiving the Radio-Active Rays continuously into your system, causing a healthy circulation, overcoming sluggishness, throwing off impurities and restoring the tissues and nerves to a normal condition—and the next thing you know you are getting well.

Sold on a test proposition. You are thoroughly satisfied it is helping you before the appliance is yours. Nothing to do but wear it. No trouble or expense, and the most wonderful fact about the appliance is that it is sold so reasonable that it is within the reach of all, both rich and poor.

No matter how bad your ailment, or how long standing, we will be pleased to have you try it at our risk. For full information write today—not tomorrow. Radium Appliance Co., 663 Bradbury Bldg., Los Angeles, Calif.

# Sunflowers

### PLENTY OF THIS HOME BREW

Not all the home brewers are brewing a drink—
Some are just brewers of trouble, I think.
—Justin Nutt

### The "Green Hand"

The Boss—"Did you go down to see what was the matter with the hydraulic ram?"

His Nibs—"Yes, but there wasn't any ram in the pasture except that old Shropshire, so——"

(Remarks of the Boss deleted by censor.)

### Questions Answered

(Hazel Nutt, recently of Napa State Hospital, has no hesitancy in giving information on any subject, known or unknown. Send in your questions.)

**Q.—How can I eradicate the troublesome wagon-burr?"—Sam Short**

A.—This dangerous weed is not found on power farms. Displace your wagons with trucks and tractors.

**Q.—"What kind of sheep produces mineral wool?"—U. Tellem**

A.—It is said any of the breeds will develop this characteristic if fed liberally on iron filings and sugar of lead. The commercial possibilities are interesting.

**Q.—"What would you recommend for the hives?"—I. M. Anxious**

A.—Keep them in a shady place and treat occasionally with paint or whitewash. One cannot be too particular with bees.

### Cash Registered

May—Do you notice any change in me?

Ray—No, why?

May—I've just swallowed a nickel.
—"Topics of the Day" Films.

### Good Rating

"What makes you think Rocks has lots of money?

"He always reads the left hand side of the menu first."
—American Legion Weekly.

### Capitalistic

"She isn't exactly pretty, but she has that indefinable something——"

"So I hear; her father has piles of it."
—Judge.

### Call Draft

Strict Father—If I should die you would have to beg for money.

Son—It sure would come natural.
—Michigan Gargoyle.

### Practical Help

Mrs. Nuwed—"How long should macaroni be cooked?"

Mr. Nuwed—"Twelve to fourteen inches, I suppose."

### Why the Change?

"At one time," remarked Miss Archleigh, "I said I would not be married until I was thirty. Now I say I shall not be thirty until I am married."

### He Balked!

They tell a story about a darkey "extra" at one of the Hollywood film studios who was receiving his instructions from the director.

"Now, Sam, you get in that bed and when the lights are turned down we will bring in a tiger and put it in bed with you. All you have to do is——"

"Hol' on—h-hol' on, Marse D'rector! Ah ain't gonna go to bed with no tiger!"

"But, Sam, this tiger won't hurt you. He's gentle. He was brought up on milk."

"So was ah brought up on milk, but ah cats meat now!"

### On the Wrong Track

Faithfully he served and asked
No gain but daily fare
And kindness. His, a model life
Of patient, plodding care.
But now he lies beneath the sod,
And ours the sad remorse—
But something's sure to happen when
An engine hits a horse.
—Justin Nutt

### Experience vs. Theory

"Every man ought to save up enough money to buy a farm and get back to the land," shouted the orator with a mission.

"Yes, and then do something else with the money," remarked a sad-faced farmer in the audience.

## San Francisco Livestock Show

(Continued From Page 6)

lines, believe they have overcome one of the chief objections to the last event, which was held at the old exposition grounds.

WIDE RANGE OF ENTRIES

Entries have been received from the principal cattle centers of this country, and Walter Shore of Edmonton, Canada, has promised a carload of horses and a carload of sheep. Among the entries thus far compiled—the list not being at this writing in any degree complete—are the following:

**SHORTHORNS**—Dr. H. M. Eibert, Woodland; California Farms, E. Gebrian, owner, Sacramento; Straloch Farms, Davis; T. S. Glide, Davis; T. T. Miller, Hollister; Pacheco Cattle Company, Hollister; Dibblee Estate, Lompoc; W. M. Carothers, Live Oak; Black Hawk Ranch, Diablo; The Ormondale Stock Farms, Redwood City; Alexander and Kellogg, Suisun; Thomas Harrison, Santa Rosa.

**HEREFORD**—E. A. Noyes & Son, Sutter; William Briggs, Dixon; Mission Hereford Farms, Mission San Jose, J. A. Bunting, owner; H. A. Baldwin, Pleasanton; J. H. Cazier & Sons, Wells, Nev.; The Diablo Stock Farms, G. W. Emmons, president; H. H. Gable, Esparto; C. L. Howard, San Francisco; H. H. Barngrover; Romie C. Jacks, Monterey; Henry Thieson, Sweetwater, Idaho.

**ABERDEEN-ANGUS**—F. F. Peabody, Santa Barbara.

**HOLSTEINS**—The California George Jr. Republic, Chino, Cal.; Manuel Azavedo, Patterson; The Stammerpohan Brothers, Turlock; The McCloud River Lumber Company; R. L. Holmes, Modesto, J. M. Christen, Martinez; The Palo Alto Stock Farms.

**JERSEYS**—J. E. Thorp, Lockford; M. Fortini, Orland; Seavy & Son, Galt; Guy H. Miller, Modesto.

**GUERNSEYS**—Cala Grove Farms, Manteca; A. V. Humphrey, Escalon.

**SHEEP**—Corriedale Sheep Company, Hollister, seventy head entered; Bullard Brothers, Woodland; Thomas R. Bishop, San Ramon.

The university of California Agricultural College will have a complete showing of all lines, including cattle, horses, sheep and goats.

## Avocado Meeting

THE fall meeting and exhibit of the California Avocado Association will be held in Exposition Park, Los Angeles, during the flower and horticultural show, October 20-26. The meeting will be held in the Auditorium of the State Horticultural Building on Saturday, October 22, at 1:30 o'clock. A popular program will be given. Free samples of avocados will be served.

The official banquet of the flower show will be given by the California Avocado Association at the Ambassador Hotel on Saturday evening, October 22, at 6:30 o'clock. There will be speakers from various organizations taking part in the flower show. This dinner will be open to the public at $2.50 per plate, and is informal.

## The Modern Way

DAY OLD chicks were delivered by airplane from the Stubbe Poultry Ranch and Hatchery to the State Fair Sacramento in one hour and forty minutes after leaving Palo Alto.

There were 600 chicks in the lot and the fact that the airline route was chosen as the means of delivering them to the Fair grounds did not interfere with their naturally healthy development. Andy Andrews, the pilot delivered the lot to the Fair in fine shape. How is this for "up-to-dateness?"

# THE BIGGER THE FIELD THE GREATER THE HARVEST

***A small field produces a small yield.***
***A large field produces a large yield.***
***In short, "the bigger the field, the greater the harvest."***

So it is with newspapers. The paper with the small circulation cannot be expected to produce as great a harvest of results to advertising as does a paper like The Los Angeles Examiner. The Examiner's circulation, city and country, is 85,000 greater on Sundays than any other Los Angeles paper, and on week days it exceeds its morning competitor by 20,000.

You can reach these thousands of readers who want what you have to sell in one way—through Examiner Want Ads. Use The Examiner whenever you need a Want Ad to secure help or sell machinery, real estate, produce, livestock, automobiles or anything you want to turn into cash.

Results to Examiner Want Ads prove that "the Bigger the Field, the Greater the Harvest."

# EXAMINER WANT ADS

*"Bring most results because most people read them"*

# SPERRY
# *Standard Recipes*

NOTE: *All measurements are level. Flour is sifted once before measuring. A half-pint measuring cup is used.*

## Sperry Baking Powder Biscuits

2 cups Sperry Drifted Snow Flour; 1 teaspoon salt; 4 teaspoons baking powder; 2 tablespoons shortening; ¾ cup milk or equal parts of milk and water.

Mix and sift dry ingredients; rub in shortening; gradually add liquid, mixing with a knife to a soft dough. Toss on a floured board, pat or roll lightly to one-half inch in thickness, cut with biscuit cutter, place in pan, brush over top with melted shortening or milk. Bake in hot oven twelve to fifteen minutes.

## Sperry Doughnuts

2 cups Sperry Drifted Snow Flour; 2 teaspoons baking powder; ½ teaspoon salt; ¼ teaspoon nutmeg; 2 tablespoons butter; ½ cup sugar; 1 egg; ½ cup milk.

Cream butter, add sugar and well-beaten egg. Sift all dry ingredients and add alternately with the milk. Turn on a floured board, roll out half an inch thick and cut with a doughnut cutter. Allow to stand a few minutes to stiffen the dough, then fry in hot fat until a golden brown; drain on paper, dredge with powdered sugar.

## Sperry Quick Cake

2 eggs; 1 cup sugar; 2 cups Sperry Drifted Snow Flour; 2 teaspoons baking powder; ½ cup milk or water; ⅓ cup melted shortening; 1 teaspoon vanilla; 1 teaspoon lemon.

Sift all dry ingredients; beat eggs until very light, add sugar gradually, beating with egg beater. When creamy, add dry ingredients alternately with liquid, mixing well. Add flavoring and melted shortening. Bake in two layers and put together with jelly or add one-fourth cup chopped walnuts and bake in well-greased muffin pans.

## Sperry Drop Cookies

¼ cup butter; ½ cup sugar; 2 eggs; 1 cup Sperry Drifted Snow Flour; 1 teaspoon each lemon and vanilla.

Cream butter, add sugar gradually, beating thoroughly; then add one egg unbeaten, mixing until batter is smooth; add one-half cup of Sperry Drifted Snow Flour; beat well, then one egg and continue beating; add remaining flour and flavoring. Drop with teaspoon on greased baking sheet about 3 inches apart, as these cookies spread while baking.

## Sperry One Egg Chocolate Cake

*First Part*: 2 squares unsweetened chocolate melted; ⅓ cup sugar; ⅓ cup milk. *Second Part*: ⅓ cup shortening; 1⅓ cups sugar; 1 egg; ⅔ cup milk; 2 cups Sperry Drifted Snow Flour; 3 teaspoons baking powder; 1 teaspoon vanilla.

Melt chocolate over hot water, then add sugar and milk and cook until thick and smooth. Set aside to cool slightly. Cream shortening, add one cup of sugar, gradually mixing well. Beat egg, add remaining one-third cup of sugar and combine mixtures; when well mixed add flour, sifted with baking powder and milk alternately, beating well. Add flavoring and the chocolate mixture. Pour in well-greased layer-cake pans and bake about fifteen minutes in a moderate oven. This mixture may also be baked in a loaf cake.

BEFORE a recipe can take its place in the ranks of Sperry Standard Recipes it must have proved itself in the making—not once, but countless times. The recipes at the left are taken at random from the Sperry Cook Book. This book has been of immeasureable help to thousands of women up and down the Pacific Coast. Not only are these Sperry Standard Recipes of practical everyday value but they provide foundation formulas that the ingenious housewife can adapt in a host of delicious, economical ways. We'll gladly send this Cook Book on request. Address Domestic Science Dept., Sperry Flour Co., Los Angeles.

*Director Sperry Domestic Science Department*

**SPERRY DRIFTED SNOW FLOUR**
"A Sperry Product"

CALIFORNIA STATE LIBRARY

# ORCHARD and FARM

NOVEMBER, 1921

ESTABLISHED 1888
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Offices: Los Angeles and San Francisco

TEN CENTS

***Thanksgiving Feast***

**This Month—A Mental Repast of Many Appetizing Features**

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**What is the Agricultural Outlook and for What Should the Farmers Strive?**

**This Important Question Answered Briefly for Orchard and Farm by Ten Agricultural Leaders.**

---

**From Steerage to Prestige**

**The True, Personal Story of a Holland Immigrant Who Made Good as a California Farmer.**

---

**Practical Hints Concerning Livestock, Poultry, Fruit Growing, Gardening, Bee-Keeping and Other Topics—All Served With Individuality and Garnished With Unusual Interest**

*"Uneasy Lies the Head That Wears a Crown."*

# "Bean" SUPER GIANT JUNIOR sprayer

## Every Grower, from the Largest to the Smallest, Needs a Good Sprayer

Even if you have only several acres, you want those acres to produce—you want the most fruit and the best fruit that your trees are capable of producing. That means care and attention, with a lot of emphasis on thorough spraying. There's a Bean built just for you—

### The Bean Baby Simplicity

A reliable, sturdy little power outfit, with a capacity of 4¾ gallons a minute at 200 lb. pressure. Reliable Pressure Regulator, Porcelain-lined Cylinders, Rotary Agitator, All-steel Frame, and other important features not found on other low-priced sprayers. The 1½-h.p. engine (magneto ignition) can be used for a score of jobs beside operating the sprayer pump. Ask us more about this popular little rig

## HIGHER PRESSURE AND LARGER CAPACITY

Here is a distinctly new achievement in sprayer building—an outfit combining high pressure and very large capacity in a rig of moderate weight that can be hauled by two horses. It throws 14 gallons of liquid a minute at 300 pounds pressure, and has a 300-gallon tank, which means quick, thorough work. With this outfit you get the spray onto the trees at just the right time for greatest effectiveness.

You save time, labor, and money—and at the same time get a job of spraying that means more and better fruit. Time is a very important factor in most spraying—the difference of a few days or even a few hours often means a difference of hundreds and even thousands of dollars in the crop. With the Bean Super-Giant Junior you go through your orchard at surprising speed—and you thoroughly saturate every square inch of every tree as you go. Send the coupon for our new catalog, which describes the entire Bean line in detail.

### The New Bean 6 H. P. Engine

A sturdy, dependable power plant which runs remarkably steady and free from vibration even under full power. Regular equipment on the Bean Super-Giant Junior and other new outfits offered this year. Can also be supplied to replace the old engine on your sprayer if you want higher pressure and larger capacity.

## Bean Spray Pump Co.

101 West Julian Street

SAN JOSE CALIF.

Los Angeles Branch: 218-A East Third Street

Manufacturers of a complete line of power sprayers from the efficient little one-man Bean Simplicity to the Bean Super-Giant with a capacity of 20 to 25 gallons a minute.

BEAN SPRAY PUMP CO.,
101 W. Julian, SAN JOSE, CAL.
Please send me your New Sprayer Catalog.
Name.....
Street.....
Town.....State.....
Kind of fruit grown.....
No. of acres.....
50-85



# THE NEW U. S. ARMY GOODS STORE

## 109 EAST 4TH ST.

U. S. ARMY Rec. 3-4-5 tine
**PITCHFORKS 78c**
As good as new.

U. S. ARMY New
**STEEL PICKS 75c**

U. S. ARMY New 12-in. Knife Handle
**WRENCHES 98c**
A $1.75 value.

U. S. ARMY New
**Pick Mattock 75c**

U. S. ARMY
**Saddles $9.95**
MacClellen Type
Practically new.

U. S. ARMY
**FEED BAGS**
REC. 69c NEW $1.09
Solid Leather Bot. and Breather

U. S. ARMY Rec.
**Bridles $1.65**
In perfect condition.

U. S. ARMY Rec.
**Lanterns 95c**
Railroad type.

U. S. ARMY Rec.
**AXES 95c**
4-lb. Steel Axe.

U. S. ARMY New
**Halter Chains 25c**

U. S. ARMY
**SPADES 98c**
Rec. D Handle
As good as new.

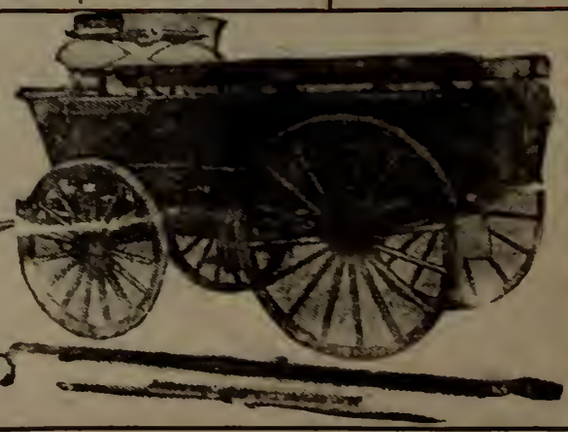
U. S. ARMY Rec.
**Pick Handles 19c**

U. S. ARMY Rec.
Portable Geared
**FORGE $7.50**
As good as new.

U. S. ARMY
## Wagons

Body 10 feet long, 42 inches wide, 22 inches deep outside of flare boards. Additional 10 inches for flare boards. Genuine Sarvin wheels with ⅝ in. x 3½ in. steel tires. Front wheels 45 inches, rear wheels 54 inches. Spring seat. Complete with tongue and double trees. Foot lever brake with tool box under footboard.

Lot 27B
Our Price, each **$59.75**



U. S. ARMY Rec.
**PICKS 50c**

U. S. ARMY Rec.
**SADDLE BAGS**
Solid leather.
**$3.85**
As good as new.

U. S. ARMY
**Camping Bags**
SOLID LEATHER
Double Shoulder Straps
**$2.45**

MAIL ORDERS GIVEN PROMPT ATTENTION

## U. S. ARMY GOODS STORE, 109 E. 4th Street

**OUR EDITORIAL POLICY**

ORCHARD and FARM is a magazine of, by and for agricultural people. We believe that to the tiller of the soil is due the best that life affords. We believe that he is the bulwark of the Nation. We honor him as the basic producer. His problems are our problems, his triumphs our triumphs, his joys and sorrows, ours. To record his achievements and expose the duplicity of his enemies, to fight for and with him, to give him genuine help and practical information to assist, entertain and inspire every member of his happy household—that is the policy of ORCHARD and FARM.

# ORCHARD and FARM

ESTABLISHED 1888

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**YOUR QUESTIONS ANSWERED**

? ORCHARD and FARM is an institution of service. Subscribers may receive, free of charge, answers to questions upon any agricultural subject. Through its large staff of specialists, and its close contact with authentic sources of information, this magazine is able and willing to serve any subscriber who requires aid or information. Enclosure of stamped, self-addressed envelope with questions will facilitate reply direct by mail. ?

## Pithy Paragraphs

The annihilation of Turkey is near at hand.

The strut goeth before the axe. (Artist Karpe's cover design this month teaches a lesson.)

But then kings are passe anyway. The only real king is he who is master of himself

And now we have the flivver equipped with wireless telephone. Wasted effort! The rattles will drown the conversation.

Walt Mason says the world is full of mud fences, built just the same ever since Adam and Eve raised cane. We all crave something new and unusual. Perhaps this is one reason for the growing success of ORCHARD and FARM; it is different; it has a personality all its own. It does not follow in the beaten track. Won't you tell your friends? Thank you!

Jas. C. Kyllin
Editor

**SEASONABLE SUGGESTIONS—NOVEMBER**

November is the "odd" month—time to look back and plan ahead. It is a good time to analyze the farm activities of the busy season just passed and to lay plans for the future. Not a bad idea to order needed repairs for farm machinery this month. They can be kept on hand for rainy weather work in the shop, and perhaps much time thus will be saved next spring. November on many ranches is a "clean-up" month, when odds and ends are attended to, fences repaired, trash picked up all about the place and winter fuel prepared. The thrifty farmer who has poultry and stock to feed will do some culling and cut expenses by getting rid of all "boarders." And, of course, there's one invariable rule for November Don't track mud into the kitchen, keep the wood-box filled, and anticipate every need of the cook. Thanksgiving is near at hand!

John Doe Dec 21
Greenville, Cal.

**IMPORTANT INFORMATION**

A label, similar to the above, appears upon the wrapper or cover of your copy of ORCHARD and FARM. The date at the right indicates that "John Doe's" subscription expires with the December 1921 issue. But John, being both wise and far-sighted, sent us his renewal order several weeks ago, and we have extended his subscription from date of expiration. "A word to the wise," etc.

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"Cap'n suh," explained the unbleached motorcycle courier, from his hospital cot. "Everythin' was goin' fine, when suddenly I seen my chance t' dodge in between two other motorcycles comin' along th' dark road."

"Well, what about it?"

"Dat's all, suh, except dem two motorcycles was a truck."

Two lights don't necessarily indicate two vehicles. In fact, it's never safe to judge by appearances, and this same rule applies to the purchase of farm and household necessities. But if the article that "looks all right" is advertised regularly, one can be quite sure it is reliable.

Another thing—When a manufacturer buys advertising space in a publication to tell people about the goods he has for sale, he thereby helps the reader as well as himself. For it is through advertising, largely, that our attention is brought to most of the necessities and conveniences that are all about us. Through advertising, we are enabled to choose, quickly and safely, the things we need. And in the meantime, advertising reduces the cost of selling the article advertised, and in the case of manufactured products, advertising, by creating wide demand, enables a manufacturer to produce in large quantities, and the price is thereby reduced or the quality improved without additional cost to the users of the article. Use this convenient index to find what you need, and to learn what is "newest and best."

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**IMPORTANT ANNOUNCEMENT**

In this number of ORCHARD and FARM are described some of the most attractive "clubbing" offers for new or renewal subscriptions ever offered by any magazine. These remarkable offers may be withdrawn on short notice. Why not take advantage of them to insure a year's supply of high-class reading matter for your family?

Or—another suggestion—Christmas is not far away. And there is no more pleasing gift than a subscription to a leading magazine. Renew your ORCHARD and FARM subscription and order the other publications sent to friends or relatives whom you wish to remember.

Or—still another suggestion—if your ORCHARD and FARM subscription does not expire for some time, send ORCHARD and FARM for a year as your gift and have the others mailed to yourself. Be sure to note the announcement on Page 29.

**THE "GREEN" HAND**

*His Nibs—"I guess we'll have to have this sharpened. I dulled it a little on those spikes."*

*The Boss—"Great Ceasar! My new rip saw! What do you mean by cutting nails with it?"*

*His Nibs—"Well, you told me to rip those planks off of the old bridge, and I didn't think you'd want me to use a cross-cut saw for a ripping job."*

Presumably poor John, fresh from the city, didn't know there were bars, picks and sledge-hammers in the tool-shed. But ever-faithful to duty, he would not be swerved by a few 20-penny spikes. A lot of folks, like the "Green Hand," never require advice or instruction. But we've noticed, the more successful the man, the more willing is he to profit by the experiences of others Perhaps that is one reason why ORCHARD and FARM numbers among its subscribers the leading producers of every California agricultural community. For ORCHARD and FARM imparts a vast store of practical information by telling the true stories of real people who are known for their knowledge and success. Please tell your friends why you like ORCHARD and FARM. This will help us to make it still better.

**Gratitude and Appreciation**—"Please accept thanks for prize money just received. The Helpful Hints contests are great. Looks as though we all had an interest in the paper!"—Mrs. M. E. McDanicl, Templeton, Cal.

**A Creed in Twelve Chapters**

(11) **Self-Confidence.**—Self-confidence does not mean conceit. To believe in myself is not to believe that I am a genius—a great artist or a commanding general. The delusion of greatness is a well-known kind of insanity. Self-confidence means the quiet conviction that success depends on things which lie wholly within my power.—W. H. P. Faunce.

# Agriculture Through the Camera's Eye

"Hobbes" do practically all the work upon the ranch of this prosperous orange grower near Strathmore, Cal. Once a tramp himself, he retains sympathy for all wanderers. Any "Weary Willie" who is willing to chop a little wood or wield a pitchfork may have a square meal and a bed. Often the "bums" remain for several days.—(Photo by Killick.)

Yes, this is only half a house, but the owner seems to know what he is doing. Having big ambitions combined with a slender purse, he has built only the [illegible]

Imperial Valley residents have a system all their own for maintaining dirt highways. A permanent earth ridge divides the road into two sections. One-half at a time is flooded and the drag is used both before and after irrigation to smooth out the "wrinkles."—(Killick photo.)

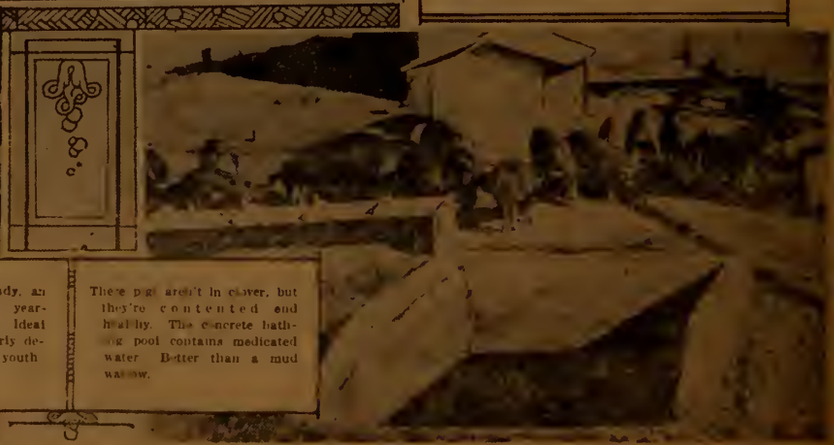
We should not look down on county fairs, but that's just what the Rogers Aircraft, Inc., photographer did while flying over the San Fernando Valley show.

The "cooties" of the poultry yard are dealt with effectually by dusting. The young lady is applying sodium fluorid to destroy lice.

The pictures tell the story of good and bad packing. The melons at the left were exposed to the sun, wrapped when warm and bruised in transit. Those at the right were unwrapped but more carefully handled.

This is George P. Weldon, Orchard and Farm's horticultural editor, giving a pruning demonstration. Mr. Weldon was one of the exhibit judges at the State Fair.

St. Mawes Lad's Lady, an 829 pound Jersey yearling. Note the ideal dairy type and early development of this youthful champion.



These pigs aren't in clover, but they're contented and healthy. The concrete bathing pool contains medicated water. Better than a mud wallow.

ORCHARD and FARM

VOL. XXXIII. NOVEMBER, 1921 NO. 11

# What Is in Store for the Farmer?

OVER a perfect roadbed the midnight express roars through the night—a streak of flame against inky blackness. Suddenly there is a flash of red, as a danger signal flares. Brakes scream; sparks fly from protesting wheels; passengers are thrown into a panic.

Then the red signal changes to green. The alert eye of the man in the cab interprets the green light, "Go ahead—but with caution." The train proceeds slowly over the dangerous section of track.

This word picture tells what has happened to Agriculture! The perfect roadbed represents business conditions as they were before "the slump." The red signal is the near panic that put the brakes on business when credit restriction damaged the tracks.

And now, if we may judge by these optimistic, yet cautious replies to ORCHARD and FARM'S telegram, (reproduced on this page) THE GREEN LIGHT IS GLEAMING and once more we may "Go ahead—but with care." Here are the opinions of national and State authorities and leaders:

## *Groping Blindly? Here's Guidance and Encouragement!*

### WHAT IS THE AGRICULTURAL OUTLOOK FOR 1922 AND WHAT IN YOUR OPINION ARE THE MOST IMPORTANT ACHIEVEMENTS FOR WHICH FARMERS SHOULD STRIVE?

***These queries were telegraphed by ORCHARD and FARM to a number of distinguished citizens, recognized for their interest in and service to agriculture. The accompanying tabulation of their replies forms one of the most important documents ever presented by a farm publication. For in this concise form are given the carefully-weighed opinions of representative men who are guiding the destinies of California producers.—The Editor.***

### Hon. Henry C. Wallace
**Secretary of Agriculture**

The agricultural outlook for 1922 is favorable.

We should see marked improvement over conditions as they have existed this year.

Time will be required for full recovery, but we have reached the bottom and are on the up grade.

The most important things the farmers should work for are: (1) The perfection of their selling organizations with a view to putting the marketing of farm products on a thoroughly sound business basis; (2) careful study of needs of the consumer; (3) intelligent adjustment of production to these needs.—Henry C. Wallace.

### James Howard
**President, American Farm Bureau Federation**

Whenever any commodity or occupation becomes materially depressed below similar other lines, reaction must follow.

Agriculture has been at low ebb for two years.

Nineteen twenty-two will see conditions improving as indicated by every reflection of world barometer.

Farm prosperity, however, probably will not be fully restored for several years.

Farmers must continue to produce moderately, intelligently, economically, carefully studying world conditions and needs.

Must insist on full recognition of rights in all matters, social, industrial and political.

Lower transportation costs, better agricultural credit, equitable taxation and tariff very important, but not more attention world peace and definite results from disarmament conference.—James Howard.

### Wm. D Stephens
**Governor of California**

[illegible] agriculture in [illegible]

The prospect seems very good for demonstration of California's profitable productiveness.

Quality and standardization must be maintained.

Organization and co-operation must continue.—Wm. D. Stephens.

### Carlyle Thorpe
**General Manager, California Walnut Growers' Assn.**

To the California walnut grower, the 1922 outlook is indeed most promising, for both the 1920 and 1921 crops have been distributed in record time, at satisfactory prices, the market on both seasons continuing firm and active at all times. Both the wholesale and retail trade have made a reasonable profit in distributing Association walnuts, and as a result an unusually heavy crop could be distributed in 1922 at prices that would show a reasonable profit to the grower as well as to the trade.

We believe the most important achievement for which California farmers should strive during the next few years is to produce only the commodities that seem to be in demand at a price above cost of production, and where the product is one that cannot be rotated, such as the products of trees and vines, the producers, through their co-operative associations, should endeavor to do everything possible to keep demand ahead of supply. By this I mean that distribution methods should be studied and, where possible, improved. Advertising and publicity should be extended to a point where consumption would at least equal production.

In practically all horticultural industries these achievements are possible if the growers recognize the value of co-operative organization. — Carlyle Thorpe.

### T. C. Tucker
**President, California Almond Growers' Exchange**

My opinion most important achievement for which farmers should strive 1922 is better crops in quality and quantity; strengthening all co-operative marketing organizations in those lines of production that are now organized and forming strong co-operative associations in those that are not organized, all of which means a more direct avenue of market to the consumer by elimination of speculation, resulting in better distribution.

This, coupled with national advertising will mean for the farmer securing his just share of the consumer's dollar, reflecting, in the long run, prosperity to the farmer and to the Nation.

The farmer's greatest enemy is himself, when the farmer fails or refuses to co-operate with his neighbor in mutual advantage and improvement.

The farmer's interest should not end with production. It should be coupled with distribution and followed on through so that he may assist the legitimate channels of trade and help the consumer to obtain products at a reasonable price. The success of the farmer in 1922 in my opinion will be exactly what the farmer makes it.—T. C. Tucker.

### Thomas Forsythe Hunt
**Dean, California College of Agriculture**

Under existing world conditions the individual farmer probably plays safest who places the emphasis upon economy rather than upon quantity.

With certain possible exceptions there is no world-wide shortage of farm products. — Thomas Forsythe Hunt.

### G. H. Hecke
**State Director of Agriculture**

California agricultural markets are gradually recovering from discouraging slump of 1920 season.

Confidence, which brings stability of markets, slowly is returning, and is being strengthened by financial relief activities of Federal War Finance Corporation.

Continuance of recovery of markets depends to an extent upon outcome of disarmament conference called by President Harding at Washington in November.

If reasonably successful results are brought about by this conference, resulting confidence will be immediately reflected in strong demand for our merchandise in the world's markets, and carefully grown and properly standardized farm products will bring reasonable financial returns.—G. H. Hecke.

### Harry S. Maddox
**State Market Director**

My opinion agricultural outlook next year most promising in history of California.

Only by more efficient marketing methods can the extreme fluctuations in prices, injurious alike to producer and consumer, be eliminated.

On the solution of this problem depends the future of California agriculture.

Most important business of farmers is to join co-operative organization, specializing in one crop for collective marketing, in orderly manner, with fair profit to producer and to any agency rendering a necessary service in the process of distribution.

This method eliminates speculation and lowers cost to consumer.—Harry S. Maddox.

### W. H. Walker
**President, California Farm Bureau Federation and Member, Executive Committee American Farm Bureau Federation**

There is a feeling of optimism over the agricultural outlook for next year.

Immense production due to wide application of scientific agriculture has emphasized the importance of agricultural economic problems.

Through co-operative associations,

(Continued on Page 9)

# "Weldon Says"—This Month in the Orchard—Why, How and When

By George P. Weldon

CONTRIBUTING HORTICULTURAL EDITOR OF ORCHARD AND FARM

Pomologist, Chaffey Junior College of Agriculture

## Fall Irrigation May Be Necessary Even Though It Rains

IT IS not only sufficient to irrigate deciduous trees during the season when they are in foliage and making active growth, but when the leaves have dropped and the dormant period has begun, the soil moisture factor still is important, replenishing being necessary even after the rainy season has started.

George P. Weldon

The moisture needs of the tree, while not so apparent when the foliage is off, nevertheless are imperative. Throughout the entire winter season there is loss of moisture through transpiration, and drying out. Death of the tree is a possibility during the winter as well as in the summer season.

Walnut growers in certain sections for a number of years have experienced trouble with a condition causing dying back from the tips of the twigs in the early spring. It is now positively known that this die-back condition is due, in some cases at least, to lack of moisture in the soil during the dormant period. The remedy is fall irrigation applied after growth has ceased.

Perhaps the only danger of fall irrigation would be that warm weather following irrigation sometimes starts new growth and such growth is so tender that it may be damaged by frosts following a little later in the fall or early winter. This danger may be obviated by applying the water only after the trees have become entirely dormant.

Strong, healthy, vigorous fruit buds in the spring will mean big crops of good fruit at harvest time. When trees suffer from lack of moisture during the winter, the vitality of the buds is low, and a poor crop results.

A thorough soaking of the orchard in late October or early November is very important during the ordinary season. Even though considerable rain has fallen previously, the application of water should not be neglected, as the early rains generally are inadequate to supply the amount of moisture necessary for the greatest vitality and vigor of the trees.

## The Gopher Menace

WHAT more discouraging experience confronts the fruit grower than to discover that trees which a few days previously had presented a beautiful appearance with their heavy green foliage, suddenly have turned brown and died!

The symptoms of gopher girdling are too familiar to most orchardists to need description. An examination of the crown of a tree affected in this manner will reveal the work of the pest, which frequently consists of the removal of the bark from about the entire crown, just below the surface of the soil and extends down to the roots, portions of the latter sometimes also being stripped of their bark. A careful examination of any portion from which the bark has been removed will show the marks of the chisel-like teeth of the rodent, and there can be no doubt as to what was responsible for the death of the tree.

The very serious nature of these pests often is not realized until one gives them a chance to work in the orchard unhampered, for a few weeks, when it may be discovered some time later that a dozen or more trees have been damaged beyond repair.

### SHOWS NO FAVORITES

The gopher in California is so widely distributed and so common that there is scarcely any one who is unfamiliar with his depredations. A serious menace in connection with his presence is found in the fact that there are thousands of acres of waste land in nearly every county of the State, where the animals breed unchecked. Cultivated areas on the border of these waste lands are subject to constant invasion and it is difficult if not impossible to prevent at least occasional injury to trees.

Again, pasture lands often are so badly infested that the tell-tale mounds occur on every square yard of soil, and while the damage to pasture may not be so noticeable as that to cultivated crops and trees, it is nevertheless serious, and no one should allow the gopher pest to continue unchecked in pasture lands.

Gophers are not commonly seen. Migrations above ground, when they occur, take place usually at night.

When building the mound as the soil is removed from the burrow, the lateral runway leading to the main runway is kept open for a short time and it is then that this pest may be observed as he labors. He is a very timid creature, however, and any quick movement will send him to his burrow and his further work may be delayed for hours.

The food of the gopher consists principally of roots, although he will devour the green portions of plants with avidity and also is particularly fond of the bark of some kinds of fruit trees. The bark of the fig, orange, apricot, prune and peach is among his favorite foods.

### CONTROL OF GOPHERS

Gopher control is not difficult but requires vigilance and care; it is complicated greatly by neglect on the part of those who have them in pasture and waste areas when their damage is not considered so great as in the cultivated areas.

Perhaps the best method is poisoning, although trapping if carefully done will result in absolute control. It is possible to shoot gophers during the time when the hole is open and the soil is being removed from the burrow. About sunrise in the morning and sundown in the evening is the time when shooting can be done to advantage.

By locating a fresh mound when there is an open hole, and using care in approaching to prevent alarming the pest, it may be seen as it slowly pushes the soil from the mouth of the burrow. A good rifle shot can have sport with a ".22," or if this proves too uncertain, a shotgun may be used instead. But while shooting offers considerable sport for the boys it cannot be depended upon alone to control gophers and either poison or traps where there are heavy infestations, must be used for the best results.

### METHODS OF TRAPPING

There are a number of different kinds of gopher traps on the market, some of which may be very successfully used.

The small wire traps such as the "Macabee" are splendid. A trap of this character requires little or no enlarging of the burrow when it is being set, and the testimony of everyone who has used them is to the effect that they are thoroughly effective.

A trap may be placed either in the lateral burrow, which may be located near one side of the hill, or in the main runway. In the latter case the use of two traps is surer than one, and these should be placed opposite one another so that no matter which way the gopher travels in the burrow he will be caught. Baiting of traps is unnecessary. The hole should be closed with weeds and a little soil or with a stone or piece of board, after trap is set.

### POISONING POINTERS

The following instructions for poisoning gophers are copied from Monthly Bulletin Vol. VII, Nos. 11 and 12 of the California Commission of Horticulture:

"The baits" (carrots, sweet potatoes or parsnips) "should be cut one inch long and ½ inch square, and washed and drained. From a pepper box slowly sift ¼ ounce of powdered strychnin (alkaloid), and 1-10 of this quantity of saccharin (ground together in a mortar) over about 4 quarts of the dampened baits, stirred to distribute the poison evenly."

These baits must be placed in the main runway, the location of which is not difficult to find by means of a probe of wood or steel.

Various patent gas and poison mixtures have been marketed with greater or less success, one of these consisting of poisoned raisins. Manufacturers offer proof of remarkable results secured with certain advertised preparations, with secret formulas.

Concerted effort on the part of farmers in a community where this pest is present is absolutely essential, and whether poisoning or trapping is employed as a means of eradication every one in the community should fall in line resolving to cease operations only when the last gopher has been annihilated.—G. P. W.

# Eliminating Sluggish Fruit Trees Through Seed Selection

By J. L. Collins

***SHALL we continue to use carefully selected buds and scions upon roots of unknown origin or worth? Recent experiments indicate that more careful selection of seed and seedlings may revolutionize the methods of propagating orchard trees. Elimination of sluggish, slow-growing individuals would mean greater—and quicker—profits. Here, then, is an article that is both revolutionary and evolutionary. It is technical, but very important.—Ed.***

WILL good, vigorous, selected buds, used upon the roots of a small seedling, produce as good a tree in as short a time as the same buds placed upon the roots of a vigorous seedling from the same lot?

This question has been answered by means of experiments which we shall discuss briefly.

First, however, it should be pointed out that, while nursery men and fruit growers generally have been giving the closest attention to bud selection, the quality of root has had little consideration.

It has been the general nursery practice to secure seed or small seedlings from any available source, much of the seed coming from Europe. Such seed when planted produces some seedlings which grow and develop more rapidly than others. These larger ones often are removed to the nursery row, leaving the smaller ones in the bed until they have attained a suitable size for transplanting. The same performance is repeated in the nursery when budding time arrives and again when the budded trees are placed in the permanent orchard.

A closer examination of the seed beds, however, has shown the presence of many types of trees in respect to shape of top, size of leaves, branching habit, root development, disease resistance and general vigor. Most of such differences become more distinct with advancing age.

Yet, although there is plenty of evidence that seedlings of deciduous and citrus fruits exhibit a wide range of types even when taken from a single parent tree, no comprehensive experiments have been carried through to demonstrate clearly their comparative value as stocks for budding and grafting. However, enough has been done to prove the importance of this factor.

For example, an experiment was started in California to see whether the size differences so noticeable in the nursery could be taken as an indication of what kind of growth they would make in the permanent orchard. There were chosen 18 small, 18 medium and 18 large trees of four different varieties—Washington navel orange, Marsh grapefruit, Eureka lemon and Valencia orange.

The degree of variation between these kinds ranges in the order named, being most noticeable in the Washington navel oranges. The trees were all placed in the same orchard, which had uniform soil conditions.

The rows were 24 feet apart and the

(Continued on Page 11)

*"Like Seedling, Like Tree"*

*These three young trees have maintained in their development the same relative size that they manifested when first removed from the nursery row. They are the same age. Which do you think would be most profitable, other factors being equal, and which would be first to produce revenue?*

# PRACTICAL POINTERS
## IN FEW WORDS FOR BUSY FARMERS

[Information concerning any article or plan mentioned on this page, or elsewhere in ORCHARD and FARM, may be obtained by addressing J. C. Knollin, Editor, 1111 South Broadway, Los Angeles.]

**The Farm Bureau Bloc**—At last the farmers have a compelling voice in Congress, known as the Farm Bureau Bloc, and composed of representatives friendly to agriculture. It does not obey the caucuses of the two big parties when the issues are not in agreement with the requirements of agriculture. The Bloc works in close harmony with the American Farm Bureau Federation. Perhaps therefore the best way to use your influence in securing favorable National legislation is by supporting the local Farm Bureau.

**Hog Cholera Prevention**—The alarming increase in the prevalence of hog cholera during the past two years has resulted in much criticism of serums and vaccination, and has aroused the authorities to combat further spread of the disease. It is pointed out, however, that vaccination is not a cure for cholera; merely a preventive. If cholera is discovered in your locality, special precautionary measures should be taken. Don't visit neighboring hog lots or allow neighbors having sick animals to visit yours. Don't drive into or through enclosures where hogs are kept. Infection may be carried by teams and wagons. Isolate all animals returned from exhibitions or newly purchased. Burn to ashes or bury four feet deep, all animals that die on the farm. Confine your dog and encourage others to do likewise. Give special attention to feeding, cleanliness and general health of the herd. It is the animal with lowered vitality that usually is first attacked. Have all susceptible hogs immunized, following the vaccination, with unusual care and a light, restricted diet. Thoroughly disinfect all places where sick hogs have been kept. If you have had sickness in the herd, burn all litter, rubbish and troughs from infected pens and lots. Turn over portable buildings, exposing interiors to the sunlight. Destroy unthrifty hogs that do not recover after sickness. They may be disease carriers. The owner who uses anti-hog cholera serum regularly, keeps his animals clean, and feeds intelligently, often escapes entirely when other herds near him are destroyed by cholera.

**Rice as an Animal Food**—While American consumption of rice is much less than that of any other country, rice growing has developed into an important national industry, said to amount to 30,000,000 bushels annually. It is stated by authorities, however, that we have about 21,000,000 acres of land that could produce 700,000,000 bushels of rice a year, or as much as our annual wheat crop. Pointing out the great possibilities in rice growing, Harry Hayward, formerly dean of the Delaware College of Agriculture, shows that rice may be used to good advantage in the rations of farm animals. Mr. Hayward says: "It may be fed in place of corn or other grain to work stock, dairy cows, fattening cattle or hogs. Pound for pound, many consider it better feed than corn, especially when fed to hogs." Several factors are emphasized in pointing out the difference between rice and other feeds.

In using rough rice, it should be remembered the kernel fat, or oil, is very unstable and soon becomes rancid, especially in hot weather. In this condition it is not palatable to stock. It is suggested, therefore, that since rice contains from two to seven and a half per cent of this oil, it should be ground only in small quantities and fed immediately after grinding.

Pork produced with rice tends to be too soft and oily. This difficulty may be overcome by "hardening off" the hogs on corn ten to fourteen days before slaughtering.

The addition of molasses to rice is recommended to make it more palatable. Many have come to believe that constantly-increasing quantities of this cereal will be used for stock food and a great acreage, of little value for other purposes, thus made highly productive. California growers cannot fail to appreciate the advantage that would accrue to them through more extensive use of rice by livestock raisers.

**Washing Soiled Eggs**—Poultry men have been warned repeatedly not to wash market eggs, because of the danger of destroying the "bloom," or surface coat of the shell. Interesting, therefore, is the recently-published report of J. H. Barber, general manager of the Poultry Producers of Southern California, that the association returns the same average price for clean washed eggs of good quality as for clean unwashed eggs of the same grade.

The following valuable suggestions, however, are included in the report: Eggs with small spots of dirt may be cleaned readily by rubbing with steel wool or emery cloth, the dry cleaning being preferable to washing.

Those that require washing, however, should be cleansed with cold water containing some washing powder or sal soda, and should be thoroughly rinsed after washing. The water must be changed frequently and all eggs rinsed in clear, cold water before drying. The eggs never must be left to soak, nor washed in hot water. Of course, the poultryman tries to keep the percentage of soiled eggs as low as possible, but it is interesting to know that in this one case at least, discrimination against washed eggs has been removed.

**Whitewash vs. Paint**—Many visitors to Washington have remarked about the brilliant white appearance of Uncle Sam's structures. Many of these Federal buildings, however, are treated merely with whitewash and not with paint. It is said that a pint of the product used on the Federal buildings will cover a square yard, and is almost as durable as paint, on wood, brick and stone surfaces. The preparation is cheaper, of course, and while ORCHARD and FARM would not be guilty of advocating the substitution of whitewash for paint as a permanent improvement, we give the formula as valuable for certain purposes on the farm. The mixture is prepared as follows: Slake a half-bushel of unslaked lime in a covered vessel of boiling water. Strain the liquid through a sieve of fine mesh or through gauze of closely woven texture. To the liquid add a peck of salt which previously has been dissolved in warm water, three pounds of rice boiled to a thin paste and poured in while hot, and at the same time stir the mixture. Then add one-half pound of Spanish whiting and one pound of glue which has been dissolved in cold water and heated in a double boiler or similar arrangement. To the whole mixture add five gallons of hot water. Stir well and let stand for several days, but keep covered to prevent the entrance of dirt. The mixture should be hot when applied to surfaces.

**Secret of Good Painting**—Inadequate or improper mixing is the cause of much "bad luck" in painting. Paint manufacturers point out that the material may most readily be brought to an even consistency by the following method: After removing the top of the can, pour off the top liquid. Then with a wooden paddle, mix or beat the paint remaining, gradually returning the oil and stirring after each addition. Then pour the paint back and forth from can to can until it is thoroughly mixed. One "master painter" always uses a paddle with holes bored through the flat part. Paint mixed in this way, applied with a good, soft brush and well spread should give good results even for the novice.

**Table Scraps for Poultry**—Table scraps may be utilized to great advantage in reducing feeding costs, but if not carefully selected, may do more harm than good. Bits of meat and left-over vegetables are excellent. Also feed beet tops, turnip tops, carrot tops, potato parings, onion tops, waste cabbage and lettuce leaves, bread and cake crumbs. Sour milk is valuable but should be fed separately, and is relished in clabbered form. Table scraps are best prepared for feeding by running through a small hand grinding mill or food chopper. The mixture then should be mixed with corn meal, bran or ground grain until crumbly. All should be fed that the hens will eat up clean, at noon or night or both. A board trough or floor may be used. Do not mix sloppy materials with the chicken scraps, and do not attempt to feed banana peels or orange skins, mouldy bread, tea leaves, coffee grounds, or any spoiled food. Avoid danger of spoilage after feeding by removing any materials not consumed.

**Transplanting Deciduous Fruit Trees**—The growth and development made by a deciduous fruit tree the first year it is in the orchard is perhaps more important in determining its productivity and efficiency than is any other year in its life history. In handling the tree every possible precaution should be taken to avoid drying the roots by unnecessary exposure to the air, the roots should not be bent or kinked in planting; dead, fibrous rootlets should be pruned away; the roots should not be exposed to freezing temperatures; usually the tree should be set no deeper than it stood in the nursery (most fruit trees are set too deep); the soil should be pressed firmly about the roots; the roots should not be bruised in handling; roots and tops should be properly pruned at the time of planting; the tree should be whitewashed as soon as possible after planting in winter, fruit trees are tenacious of life. They may endure abuse and still live, but abuse weakens them. In my judgment more than half of the fruit trees planted annually in the United States, make less than half the growth they should make the first year in the orchard. These observations should not be regarded as a reflection upon the fruit grower, for it is the successful fruit growers with whom I have been intimately associated, who first called these suggestions to my attention. Some of them have been still farther emphasized by investigations which these fruit growers stimulated.—J. C. Whitten, University of California.

**New Invention for the Cook Stove**—Interesting and very successful is the new combination water heater and gas stove top now being marketed by a California concern. It does away with the separate tank and water heater, gives a clean, smooth cooking surface similar to that of the best coal range, prevents upsetting of utensils, gives heat under the entire top with the use of only two burners, and improves the appearance of the stove. The water is heated by means of coils included with the appliance. The special top is being applied to many farm-home stoves which have been converted for gas by means of kerosene burners.

**"Interplanting" With Livestock**—Poultry and sheep, and even cows are becoming important "inter-crops" in many orchard sections and at least one breeder maintains a herd of goats between the trees of his orchard. A San Bernardino County orange grower has maintained his family and helped to pay expenses while his grove was coming into bearing by keeping white leghorn hens, while the combination poultry-walnut ranch no longer is a curiosity. In central and northern California a number of fruit growers have abandoned clean cultivation and are using the space between the trees to grow alfalfa and other forage crops. The live "inter-crop" may be the more profitable, for there's the added revenue of the fertilizer.

**The Ultimate in Farm Lighting Plants?**—The new automatic power and lighting plant recently announced by one of the great Detroit automobile corporations is one of the most remarkable innovations yet developed. It is entirely automatic and self-contained. The reinforced steel gasoline tank forms the base for the compact machinery. Rubber-jar storage batteries are set in a stout box, the entire outfit being housed in a small shelter at a distance from the house. About once in two months the gasoline tank is filled, a red light in the house indicating when fuel is needed. With the exception of oiling once a year, no other attention is required, as the engine is started automatically wherever the battery needs charging and is cut out automatically when sufficient "juice" has been developed. The insulated cover or "house" protects the plant in cold weather, and if the temperature goes too low, the engine automatically runs until it is warmed up, incidentally charging the battery, of course. The instructions for care of the plant are: "Give it oil and gasoline, and let it alone."

## Ben Gonnadooit Says

*I wisht they was some way a pore man like me c'd sue th' guv'ment an' get some satisfaction in a reason'ble length o' time. But by th' time a feller paid some lawyer t' file a suit, an' waited fer results, he would go broke er die of old age. Yes, I sure am sore at Uncle Sam fer th' trick he done me this fall.*

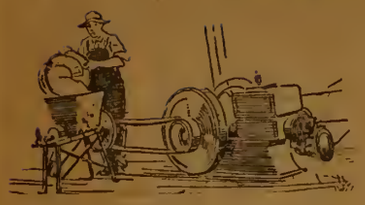
*Us tax-payers is supportin' high-priced weather forecasters who is supposed t' tell us when it's goin' t' rain. And what do we get fer it? I spent most o' my time last week readin' through all th' papers t' see what th' weather was goin' t' be. Every day th' report was "Fair and Warmer."*

*Well, if I had a' spent th' same amount o' time threshin' my beans I could a' saved th' crop. As it was, there come up a sudden storm, an' it rained pitchforks fer seven hours. Th' beans was ruined—liter'ly ruined, and all because them graftin', no-count weather men wasn't on th' job!*

*But, shucks, what's a pore man without no influoence t' do? Ho-hum! I sure do use a lotta red ink in my book-keepin'!—Ben Gonnadooit.*

# Let the Engine Do the Work

By Arthur L. Dahl



John Brown has a little engine,
And it goes "Put-put-put-put"—
Churns the butter; rocks the baby;
Labors when there's wood to cut.

Grinds the feed and does the washing.
Brown is now a motor-nut.
When neighbor says he can't afford one,
John replies, "Tut-tut-tut-tut."

WITH due regard for the value of the tractor for belt work, it must be admitted that for many farm jobs it possesses excessive power.

For the lighter work the gas engine is ideally suited, and where it is not feasible to move the outfit from place to place, it often pays a farmer to own more than one engine, belting each unit to the particular job for which it is suited. Gas engines are comparatively cheap, and when good care is given them will last for many years. The fuel cost depends entirely upon how much the engine is operated, but is surprisingly low in comparison with results delivered.

### MISTAKEN VIEWS

Many farmers who could use gas engines refrain from buying them because they have an idea that they are very complicated and hard to understand and operate. This is not true, however, for there are many good engines on the market today that are simple in construction and operation, and if a farmer spends a little time at the start in learning the functions of the various engine parts, and will follow the instructions of the manufacturers there is no reason why he should not get the best results possible from such a power plant. Most gas engines are simple and compact and for the lighter kinds of belt work around a farm home and barn are economical both in actual cost and in time and labor saved.

### FIRST COST SMALL

For an outlay of not more than $100 a good gas engine with a power rating of one and one-half horsepower can be purchased. (Many are available for less.) Such a machine will have ample power to do most of the work around the farm house. It can be belted to the washing machine or the cream separator, or it will operate a small electric lighting plant. Some farmers use a gas engine of this type to run the milking machines in the dairy.

As a means of pumping water for domestic use or for watering stock, or for irrigating small parcels of land, a gas engine is efficient and cheap.

One farmer in the Middle West finds almost constant use for three gas engines on his farm, which is of ordinary size. He uses a one and one-half horsepower engine for pumping water, another of the same size for operating the washing machine, and a fifteen horsepower gas engine for operating a large burr grinder and shredder in the barn. These engines are used in addition to the tractor, which is reserved for field operations and heavy belt work.

### THE PORTABLE UNIT

Another farmer has mounted his two horsepower gas engine on a movable base so that it can be transported from place to place on the farm. In addition to doing a lot of work around the dwelling, including running the washing machine, cream separator and pumping water, the engine also operates a fanning mill and a buzz saw.

Before buying a gas engine the prospective purchaser should consider carefully the uses to which it will be put and should decide upon the size and type best suited to his particular needs. While it is a mistake to buy too large a machine when a smaller one will furnish adequate power for the task assigned to it, one should not go to the other extreme and buy an engine too small to meet the requirements of the farm.

### FOR STATIONARY WORK

If the engine is to be permanently anchored in one place and used exclusively for running a particular machine, such as a cream separator, washing machine or a pump, the engine secured should have a power rating sufficient for that job, but little more. But where the engine is to do the general work on the farm, it is best to allow for a fair surplus of power.

A 4-horsepower gas engine, which will weigh in the neighborhood of 100 pounds, and which is carried easily by two men, will perform most of the ordinary jobs. A machine of this size will run the cream separator or other household machinery, and in addition, can be used for many jobs in the field. One attached to a grain binder will perform the work of a team of horses, or may be used on a corn binder or potato digger.

### FOR HEAVY JOBS

A gas engine with a rating of 8 horsepower, and weighing less than 400 pounds, will provide ample power to perform all medium jobs on the farm, including the operation of a hay press, corn picker or saw rig.

A large gas engine, say one of 15 horsepower, will furnish power for a six-hole corn sheller, ensilage cutter, large feed grinder or a small thresher, and may be especially valuable on a ranch not equipped with tractors.

### TRACTOR FOR BIG JOB

If the power requirements are in excess of 15 horsepower a farmer may find it more satisfactory to use the motor of a heavy tractor, for it has the advantage of being able to move from place to place under its own power, and most tractors have motors well adapted to doing heavy work for long stretches of time. The gasoline engine ordinarily is more economical only for the smaller jobs, or for stationary work.

The engine is a valuable aid to efficient fruit-growing. In recent years the manufacturers of spraying outfits have improved their machines and spraying mixtures, and large units are maintained on most fruit ranches. All of these spraying outfits require power to force the mixture over the trees or shrubs to be sprayed, and for this work the gas engine is ideal. Usually engines of from 1½ to 4-horsepower are used with spraying machines, and a number of spraying outfits are made to fit standard gas engines, while others come already equipped with power.

While gas engine manufacturers have tried to make their machines as simple to understand and operate as possible, there are certain things that must be done by the user to get satisfactory results.

### POINTERS ON OPERATION

One of the first requirements for successful operation is the use of a good grade of lubricating oil. Many owners use grades of oil entirely unsuited to their engines, and in doing so invariably disregard the recommendations of the engine manufacturers. Fuel and lubricating oils are carefully tested out by the gas engine makers, and their recommendations should be followed.

Another common error is the use of too little oil. It is poor economy to try to save on oil. The function of a lubricant is to form a thin film between moving parts to prevent their touching, and when this film is lacking, or the oil is thin and poor, friction, heat and wear are inevitable.

It is always best to use a good quality of fuel oil, and the proper adjustment of the carburetor should be made to insure just the right mixture of gas and air. An excess of oil in the cylinder will cause carbon deposits, followed by loss of power, overheating and pre-ignition. Heavy bluish smoke from the exhaust indicates that the cylinder is getting too much oil.

### A LITTLE CARE PAYS

By making frequent inspections of the engine, tightening all bolts and nuts, wiping off excess oil, and keeping dirt away from working parts, the operator may avoid many troubles. The vibration incident to the operation of all engines has a tendency to loosen bolts, and nearly all breakdowns can be traced to such little things as a loosened screw or bolt.

Every engine, whether permanently anchored, or mounted on a movable base, should have a level foundation. A machine that operates out of plumb is subjected to unnecessary strains.

### IGNITION TROUBLE

The ignition system is the source of most engine troubles, and the owner should familiarize himself thoroughly with this part of the engine. The dealer or engine service man gladly will show him the simple tests to use in locating trouble with the ignition, and the same thing applies to other parts of the machine. Thoughtless tinkering should be avoided, and every move to locate and remove the trouble should be guided by intelligent knowledge of the purpose and functions of each part. Then the engine owner will be able to get perfect service from his power plant and will be in a position to render first aid in cases of trouble.

# Little Talks on Irrigation

## I—The Importance and Use of Our Underground Water Supply. Is It Growing Less?—By Buford Alexander Tucker.

[Editor's Note—The writer of this article, as sales manager of the Layne & Bowler Corporation, manufacturers of turbine centrifugal pumps, has had wide practical experience and is eminently qualified to discuse irrigation problems. Other articles upon the practical aspects of water use and conservation will follow.]

AS we travel the many beautiful valleys of California, over paved boulevards, I wonder how many of us realize that the one essential which makes our valleys prosperous—makes our boulevards possible—is the water from the mountains.

During the winter the snow falls on the mountain tops; it melts during the warm days of spring, and the water either is stored in natural lakes, or "runs off" through rivers out into the valleys. The water that is stored in lakes sinks slowly into the various sand and gravel strata and finds its way also into the basins of the valleys. And the underground channels which carry the water are very similar in formation to the surface streams—containing sand, gravel and boulders.

The velocity of the underground flow is governed largely by the formation through which it passes—boulder formation permitting higher velocity than fine sand.

To make use of the underground water supply it is necessary to drill wells and to tap the various strata. But scientific knowledge is required in order to avoid costly experiment or errors. The wells are cased with steel, and when the proper depth is reached and the casing "landed," the driller inserts a perforator, making openings in the casing at each stratum. As a general rule the water, due to pressure, will rise much higher in the casing than the points at which the various perforations are made.

The amount of water obtainable depends upon the kind and amount of water-bearing formation drilled through, and, of course, the larger the well the more water it is possible to produce. When the well is finished and the correct pump is installed, the lift necessary to get an economical flow to the surface depends upon the pressure back of the supply. After the "head" is pumped off, this pressure forces more water through the openings in the casing; therefore as the pump continues to operate, the pressure automatically will force in enough water to maintain a certain level in the well. This level is the point at which

(Continued on Page 33)

*Twenty-two Varieties on One Tree*

*Home owners who like a variety of fruits but who have a limited space in which to grow them, should take a hint from this remarkable tree at San Dimas. It has been successfully budded to twenty-two varieties of citrus fruits. It is indeed startling to witness a single tree, growing from one root, yet bearing and bringing to maturity such a promiscuous crop. Among the fruits which have been harvested from this tree are navel and valencia oranges, sweet and sour limes, lemons, grapefruit, kumquats, blood oranges and tangerines. Apparently no variety is impaired by growing with other kinds in this manner.—Victor W. Killick.*

# Hubam Clover---What Will It Mean to California?

ANNUAL white blossom sweet clover (or Hubam, as it has been named) for the past two or three years has attracted a great deal of attention among agricultural authorities and experiment stations, while many farmers have been making tests and comparisons as to its value, both for forage and for green manuring.

The plant is not exactly "new." Practically all fields of melilotus alba (biennial white sweet clover) in California show a number of plants which grow as annuals, setting seed and dying during the first season. As an average, about one plant in every two or three hundred will be an annual. These show up very plainly on account of their white blossoms, and on this account one is inclined to over-estimate the number in a field.

The University of Illinois and the Iowa Agricultural College have isolated the seed from these annual plants, and, through the courtesy of the latter college, small packets have been sent to individuals and schools over the country to determine its local value. The results of such tests in California, while not all available, already have brought out interesting facts.

LOCAL CLIMATE AND ITS EFFECT

California, as a whole, and the southern and central portion of the State in particular, so far as soil and climatic conditions are concerned, is a world to itself. It is really a desert, arid region, where the rainfall comes usually within a four-month period during the winter. Average rainfall will vary in the State from three inches a year to sixty inches, and in a distance of twenty-five or thirty miles may change from the minimum to the maximum. For example, the city of San Diego shows an average of less than ten inches, while in the interior of the county are two belts, one with an average of twenty to thirty inches, and one from thirty to forty inches. Imperial County, which joins it, shows a three-inch average.

Without irrigation none of the melilotus group of the legume family will thrive with less than twelve to fifteen inches of rain, with the possible exception of the biennial plants in the second year. This fact in itself emphasizes the necessity of considering California conditions.

COMPARISON WITH OTHER CLOVERS

In California we must compare the Hubam clover with the alba, indica and officinalis for top and root growth under the same growing conditions, in the same field, and during the same year.

Hubam clover is the annual white blossom sweet clover which starts blooming about August 1st and should mature seed about October 15th.

Melilotus indica is the annual yellow blossom sweet clover (usually called "sour clover"), blossoming about March 15th and maturing seed about May 15th.

Melilotus alba is the biennial white blossom sweet clover, blossoming about August 1st of the second year and maturing seed about October 15th.

***DO YOU remember when all sweet clover varieties were regarded as weeds? Now they are among our most valuable forage and green manure crops. And here is a new aspirant for honors—the much-heralded "Hubam." Will it become popular in California? Answering this question, Mr. Hubbell incidentally gives some valuable information on other clovers. Be sure to read this brief but important article by a man who has made first-hand studies in the field.—Ed.***

By W. C. Hubbell

Melilotus officinalis is the biennial yellow blossom sweet clover, blossoming about June 1st of the second year and maturing seed about August 15th.

CALIFORNIA EXPERIMENTS

A planting of Hubam made near Alameda in sandy soil May 1st, 2nd and 3rd, 1920, was stripped of mature seed November 17th. Each plant gave an average of 220 mature seed and about the same number of immature seed, due to the lateness of the planting. Volunteer plants for this season are larger than the parent plants and were all in bloom before the 1st of September. The root growth was identical with melilotus alba, in the same length of time, and the top was about 10 per cent larger. A part of this same lot of seed was planted near Ripon, San Joaquin County, where the seed crop and root growth were nearly the same, but the top growth was 15 per cent less than the alba.

Los Angeles plantings show the same variations, so that during the first three or four months' growing period top and root growth really are about equal. Both Hubam and melilotus alba will have a smaller top but a larger root than melilotus indica in this time. The indica is absolutely a winter growing plant only, and makes its seed with the first hot weather, while the Hubam, officinalis and alba make their growth during the warm weather.

MUST BE CUT GREEN

For hay, pasture or green manure do not under any circumstances allow any of these clovers to grow more than two and one-half or three feet high. If it is not possible to pasture the fields, mow them and let them lie on the ground or cure for hay. All of these plants become hard and woody when starting to blossom and will not make good feed, or if plowed under may prove harmful instead of helping soil conditions.

A green, succulent plant will rot quickly with little moisture other than that in the plant and will be available as plant food within a short time, while the dry, woody tops may lie in the ground for two or three years, interfering with cultivation and holding up the soil so that a great deal of moisture escapes. Green growth, however, when plowed under acts like a sponge to hold and retain the soil moisture.

Hubam should give two or three cuttings and a growth for seed, or for plowing under, by August 1st.

Melilotus alba on an average good soil in California is giving from three to eight cuttings of a ton and half to the acre the first year and five or six cuttings and a growth for seed or a growth for plowing under by August of the second year.

Melilotus officinalis is giving from three to five cuttings of about a ton each the first year and the same number the second year. These comparisons tell their own story.

PRICE OF SEED

Hubam seed, like that of all new plants, is bringing very high prices. In some cases growers have sold their seed for $15 to $25 a pound, and it may be several years before seed for general planting can be bought at prices within reason. Until this time, any one willing to start in a small way with the seed now obtainable in two or three years can raise enough to plant several acres, which should pay well for the time and care necessary to grow it.

*"Hubam" Clover*

*This single plant was photographed at four and one-half months of age. Because of its rapid growth, Hubam is displacing biennial clovers in the East and Middle West. It received its name through a combination of "Hughes" and "Alabama." The first pure strain is said to have been discovered by H. D. Hughes in the Southern State.*

# What Is in Store for the Farmers?

(Continued From Page 5)

the farmers have materially helped distribution.

The Farm Bureau federations have found that better agricultural economic conditions must be secured through better marketing conditions, a more flexible financial credit, reasonable transportation rates and a tariff which will permit American women and children to enjoy life on the farm under the American standard of living.

The California Farm Bureau and the American Farm Bureau Federation are striving to secure this constructive improvement.—W. H. Walker.

Wylie M. Giffen

President, California Associated Raisin Co.

[illegible] for California dried fruits, [illegible] fair [illegible]

Generally speaking, crops are light this year and market conditions much better than we expected 90 days ago.

Apparently present crop will be consumed before new crop is grown, leaving a bare market.

Along with everything else, prices may be cheaper but undoubtedly cost of production will be correspondingly cheaper which should leave farmers a fair profit.

The greatest achievement for which farmers should strive in our judgment is better quality and better marketing which means that co-operative method of selling should be strengthened all along the line and that fruit products of California should be sold and advertised under a brand belonging to the growers themselves.—California Associated Raisin Company, Wylie M. Giffen.

W. A. Yerxa

Vice President, California Prune and Apricot Growers, Inc.

Dried fruit outlook for 1921 and 1922 is very encouraging. With fresh fruit crops of United States and Europe practically wiped out, the dried fruit crops naturally come into heavy demand. Dried prune and apricot crops are not near normal production. The 1920 crops of both prunes and apricots are cleaned up and present indications point to an early spring clean-up of dried fruits, leaving bare market for 1922 crops. Altogether, we feel the situation is splendid.—W. A. Yerxa.


WHY build a new fence every few years and be annoyed with constant repairs?

RED TOPS give you a strong — permanent fence line. The staples don't loosen—the posts can't burn. No holes to dig—they drive like a stake.

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*Geo. C. Roeding, Pres.*

FANCHER CREEK NURSERIES

Fresno, California

# Steerage to Prestige—How an Immigrant Boy Made His Fortune as a California Farmer

***PRACTICALLY penniless, George Stam landed in America 32 years ago. Now he owns 1000 acres of California land upon which he has expended more than $50,000 in improvements. The methods and characteristics which brought him success are set forth briefly in this interesting article.—Ed.***

By O. H. Barnhill

CONTRIBUTING EDITOR OF ORCHARD AND FARM

HIS full name probably is Stamina, for he is the personification of that admirable quality. Strong as an ox, powerful and determined, this hard-headed, two-fisted Hollander is the embodiment of force and energy. He is one of those men who, upon hearing a threat, rise refreshed. They enjoy opposition and delight in overcoming obstacles. To such individuals no difficulties are insurmountable. "Lead me to it!" they exclaim, when told of a peculiarly tough proposition.

O. H. Barnhill

George Stam has had his fill of fighting the forces of nature since coming to America 32 years ago. At that time the lower Sacramento Valley—which the newcomer chose because it was more like the Netherlands, perhaps, than any other part of the United States—was largely an undeveloped, swampy wilderness, covered with tules and inhabited by waterfowl.

But Stam knew the productive possibilities of fertile soil and plenty of moisture coupled with convenient markets, water transportation and a warm climate. The rich bottom lands around the Capital City had not then been reclaimed from flood waters, except to a very small extent. Levees were being thrown up by horse and steam power. Chinese laborers with wheelbarrows being familiar figures in early day city building. Construction was slow, expensive and inadequate. More than once Stam had his crops destroyed by flooding.

The doughty Dutchman kept digging away, however, gradually moving up the river as Chinese, Italians and Japs in turn crowded each other off the levee with tools. During the past few years his operations have been mostly southwest of Sacramento and when at last he got in shape financially to buy and reclaim a large tract of land he chose the Sutter Basin. Here, on the east bank of the river, Stam has 1000 acres upon which he has spent $50,000 in improvements, yet the real work of development has only begun.

## PIGS PAY PRINCELY PROFITS

As a result of long years of experience and observation, Stam believes that the kind of farming best suited to the reclaimed lands along the Sacramento is the production of milk, pigs, vegetables, pears, prunes and grapes.

Firmly convinced that he has picked a winning combination, he is getting his ranch in shape to turn off all of these valuable commodities.

Stam already has fine herds of Duroc Jersey hogs and Holstein cows and is erecting buildings of the most approved types to house them. His hog barn will be 24 feet wide with an 8-foot feeding platform on either side, all floored with concrete. One-third the width of the building will be taken up with a center alley, flanked on either side with farrowing pens eight feet square.

There are three separate departments to the Stam ranch, each devoted to a distinct type of farming. One will grow vine and tree fruits; another grains and vegetables; while the third will produce alfalfa hay and pasture. The latter will furnish feed for cows and pigs; the second fattening and milk provender and an annual cash crop, while the first represents the permanent plantings, which will in time bring in the biggest acre returns.

## PORK AND BARLEY

"With pigs bringing $11.60 and barley only $1.22, netting beats pork production," says Stam. "With good stock—and it pays to keep no other—200 pounds of meat worth $22.20, can be put on pigs by feeding 700 pounds of barley worth $8.55. This means a profit of $13.65 on each five sacks of barley fed. Figuring another way, we get $4.40 for our grain. Here in the Basin barley yielded up to 43 sacks last year, which would mean nearly $200 per acre if marketed in the form of meat. Half that would be big money. With alfalfa yielding up to eight and ten tons of dry feed per acre and a climate which permits pasturing every month in the year, it is possible to produce pigs very cheap.

"One of the best and cheapest hog feeds I have found is boiled beans. For a penny five pounds of split and other cull beans can be bought, which is only $4.00 a ton.

"We can grow a fair crop of milo maize, spuds or squash on the same ground which has produced barley earlier in the season, still further increasing the profits. Of course it isn't possible to do this on less fertile ground or where the seasons are shorter."

## SHIPS DIRECT TO HOLLAND

Stam shipped a barge load of barley direct to Rotterdam this season, reloading on steamer at San Francisco. The price received was $5.36 per kilogram, which equals 220 pounds. This figures out $2.43 per hundred. The river freight to San Francisco is $4.00 a ton and the steamer charges $12.00, a total of $16.00, or 80 cents a hundred; this leaves an f. o. b. price of $1.62 at the basin, or about 45 cents above the local market.

A relative of Stam's now is in Holland trying to arrange for fresh fruit shipments direct from California by refrigerator steamers. Last winter a cargo of apples was sent by this method from Oregon via the Panama Canal to England. This opens up great possibilities for Pacific Coast fruit growers, especially those who have local water transportation. In point of produce grown along its banks and shipped on its waters, the Lower Sacramento is the first river in the world, the annual tonnage being from 17,000 to 20,000 cars—enough to make a thousand trains.

## FRUIT PROMISES MUCH

The former Hollander is counting on making a big bunch of money out of the orchards which he is planting. Sutter peach trees bear record crops, which are bought by canners at top prices. One grower, Miss Lizzie Wilbur, had thirty acres which last year bore 900 tons. At pre-war prices $[illegible]—which canners offered at the beginning of the present season, but later raised to $[illegible] and $[illegible]—this crop would bring $21,000, or $700 per acre. The small county of Sutter produced two years ago 19,000 tons of grapes and 1,200,000 bushels of peaches. Two thousand carloads of the latter fruit is shipped to factories outside the county, home canners lacking that much of being able to take care of the immense tonnage.

When asked if he wasn't afraid of the levee breaking and letting the water drown out his crops as of yore, Stam smiled broadly.

"That's the least of my worries," he replied. "The Basin is surrounded by embankments several feet above the high water mark and wide enough on top to build a regulation State highway. The Southern Pacific is tearing down its trestle across the lower end and laying the ties on the ground, which shows what confidence they have in the levees. Drainage is taken care of by six 40-inch centrifugal pumps at the lower end of the Basin. Each pump is driven by an 800-horsepower electric motor and throws a stream of water over the levee big enough to fill a thousand barrels a minute. When all the pumps are working the Basin is drained in less than two weeks.

"Water for irrigation is supplied by a similar set of 42-inch pumps at the upper end of the Basin, lifting the water 17 feet out of the river and filling 200 miles of canals. Of course our land doesn't need much irrigation, but it is a fine thing to have plenty of water when we require it.

"Yes, it's somewhat lonesome here in the Basin now, but it beats living with Japs and Chinks. The land is being subdivided and sold to settlers in tracts of 40 acres, or any other size desired. Over in Holland where conditions are similar to what they are here, a farmer makes a living by dairying on a very few acres. A hectare—2½ acres—sells for 3000 to 4000 guilders or about $1300 at the present rate of exchange.

## DAIRYING IN HOLLAND

"Cows are handled very differently there from what they are here," continued Stam. "There are no roads in some parts of Holland, the land being divided by canals. In such districts the farmers all live in small villages, going in boats to and from their farms. Each cow has her stall and rope on the canal and at milking time each animal comes to its stake when called. The milk pails are emptied into a vat on the boat and in my time the cream was added immediately and the girls began stirring the curd for cheese on the way home from milking, afterwards pressing out the whey by hand.

"Dutch dairymen keep half their land in pasture and the other half in hay, changing the ground from one crop to the other to maintain fertility. They do not have silos, but store green hay in shallow pits, piling it up a few feet above the top of the ground and covering it with a foot of earth. This is something like an underground silo. Beet pulp also is fed.

"The house, cow-barn and cheese factory are all built together in one large rectangular structure. Hay is stored in the center of the building, which has separate rooms of equal width on all four sides. On one side are the living quarters, on another the cheese factory, while the cows occupy the two remaining sides. In the fall the cows are brought to the barn and not taken out until spring.

"Cheese is made by machinery now

*Building Bacon With Barley*

*Pigs and grain make a profitable combination, says Stam, when they are sold together in the form of pork. But, realizing the danger of putting all his eggs in one basket, he goes in for dairying and fruit raising also.*

and is not what it used to be," concluded the sturdy Dutch farmer. "In the old days full cream cheese was made out of whole milk, but now most cheese is the skim-milk kind. We used to take our cheese to market and pile the rich yellow cylinders down on clean straw in the shape of a pyramid. Buyer and seller would 'dicker' by shaking hands. The one who made an offer either to buy or sell would take the other's hand. When the same price was mentioned by both parties their hands came together—they had 'struck a bargain.'

"Yes, America is a better place to live and make money than Holland. I've brought a number of my relatives over here. Many others would like to come if they could get some of this good land such as I have farmed successfully.

*Here is George Stam in His Corn Field*

*Stam doesn't farm by proxy or by telephone. He not only oversees his crew, but also "digs in" himself when necessary. "I've never been afraid of work," says the horny-handed Hollander. And, judging from the set of his jaw, we should guess that he is not much afraid of anything!*

## Eliminating Sluggish Fruit Trees

(Continued From Page 6)

trees 10 feet apart in the row. After planting they were given the same treatment in every respect; in fact, everything possible was done to eliminate differences in environmental conditions which could influence plant growth.

After two and one-half years the differences in size shown by the trees when planted were just as distinct and marked as they were at the beginning. The large trees in every case would now be considered larger than usual for two and one-half year old trees. The medium and small sized trees also have grown proportionately to their size.

### OTHER DIFFERENCES NOTED

Just as interesting and important are the differences in blossoming and fruit setting. In the second year the large trees blossomed well and set some fruit, the medium sized trees produced a few blossoms, but set no fruit, and the small trees did not, except in one or two cases, even form blossoms. In several it appears that each group is about two years ahead of the next smaller group.

The difference in growth in most cases is due to hereditary qualities of the stock used, which are not likely to change in the nursery. This conclusion is supported by other observations on seedlings which were permitted to grow on their own roots for several years.

In a bed of English crab-apple (malus communis) seedlings, eight distinct types were found, these consisting mostly of large, thrifty, medium sized, and dwarfish, slow-growing plants. In order to determine whether such differences were permanent, samples of each type were permitted to continue growth on their own roots. When five years old they still maintained their relative class positions, showing a range in height from 4 feet and 11 inches to 11 feet and 4 inches, and in circumference of trunk from 4.5 inches to 9.5 inches. A second bed of 5000 European crab-apple showed the same kind of variations at the age of four years.

Of 96 two-year-old seedlings grown from apple pomice, 43 were tall and vigorous, 39 were medium in size and 14 were very dwarfish. In Minnesota 4079 seedlings of the Malinda apple (open pollinated) were grown. In the seed bed the first year 200 were taken out as too small and dwarfish to furnish good trees. The remaining seedlings were put into a field plot. During the next two years 1903 or nearly

(Continued on Page 23)

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# EDITORIAL DEPARTMENT

## Timely Topics among Farm Folk

### "The Opinions of Others"

WISE is the man who requests and considers the advice and opinion of others—and then draws his own conclusions.

The farmer at the present time must make important decisions, and perhaps at no time within the past decade has the situation been more puzzling.

Countless weighty questions impose themselves upon the puzzled producer.

What is the world situation with regard to agricultural production?

Will prices be higher or lower?

Shall unstinted support be given the co-operative marketing movement, or has it been carried too far?

Is this a time for expansion, or should conservatism rule?

These and many other questions are discussed, directly or indirectly, by a number of the agricultural leaders of America and California in this number of ORCHARD and FARM.

Read the brief, but pointed replies to ORCHARD and FARM'S telegraphed questions: "What is the Agricultural Outlook for 1922, and What in Your Opinion are the Most Important Achievements for Which Farmers Should Strive?"

You may not agree with all the opinions expressed by these agricultural leaders, but they are worthy of most serious consideration!

### Better Farm Machinery

THE tractor industry for a time outgrew the implement and machinery industry. Makeshift, horse-drawn equipment was used with powerful engines, and unable to withstand the heavier strain, soon collapsed. The new implements, however, are equipped with high grade bearings, power control, stronger yet lighter parts and improved design for more rapid operation.

Any farmer well may interview his implement dealer or send for the new catalogs of the manufacturers. To have an accurate knowledge of modern developments, the man who uses the implements must revise his ideas entirely.

Are you keeping pace with this important agricultural advancement?

### Fair and Show Season Ending

ONE of the most encouraging signs of agricultural prosperity in California was afforded by the 1921 fair and stock show season. Contrary to the expectations of many observers, this year's State and local events were extremely successful, the only failing as compared with previous years being (in some cases at least) the attendance.

Economic conditions readily explain this factor, but we may gain hope and encouragement from the number and high quality of the exhibits and from the keen competition in all departments.

Considering business conditions in the Nation as a whole, we may safely pronounce the season just closing as one of the most successful in the history of California.

### Organization Vs. Individualism

A PROMINENT writer recently aroused nationwide comment by his statement that we are becoming a nation of organizations and are losing our sense of personal responsibility.

"There is an increasing tendency," he pointed out, "for individuals to sit back and wait for 'the association,' or 'the organization,' or the Government to 'do something about it.'" Our danger lies, he showed, in losing our sense of individual responsibility and our obligation to work and produce.

But is this situation as serious as it is painted? Take the case of the farmers, for instance; through associations they are accomplishing things that never could have been done by scattered, undirected individual effort.

Through co-operation they are giving their families comforts formerly unavailable. They are stabilizing markets and eliminating waste. Is this detrimental to the Nation? The only way in which organization can hurt us is through failure to take part in its activities. The most successful organization is that in which each member has an active voice and which is not permitted to become dependent for its accomplishments upon the work of the few officials.

### Disarmament and Agriculture

"AND they shall beat their swords into plowshares." Will this Biblical prediction be fulfilled at Washington in November, when the great powers of the world meet in Washington, at President Harding's invitation, to discuss disarmament?

Not literally, perhaps—yet this momentous occasion will have an important bearing upon the business of food production. It may restore the confidence that will open world markets and stimulate a great wave of buying. MANY AGRICULTURAL AUTHORITIES BELIEVE, IN FACT, THAT THIS CONFERENCE WILL BE THE MOST IMPORTANT EVENT, FROM THE FARMERS' VIEWPOINT, OF THE STRENUOUS YEAR NOW CLOSING!

*THE PEACEMAKER*

*"And they shall beat their swords into plowshares."*
*—Isaiah 2:4*

But those idealists who anticipate complete disarmament of all the great nations are likely to be disappointed. President Harding has made it plain that he expects only to accomplish a limitation of armament, and admits that he will feel elated if this is brought about.

Complete disarmament, he points out, can result only through a complete change in human nature, and he does not consider this a propitious time to attempt to make over the world.

In this he demonstrates his common sense, as compared with the dreamy idealism of Woodrow Wilson, who allowed his enthusiasm for a "futurist" cause to warp his good judgement.

Yes, we should be glad if the forthcoming conference accomplishes nothing more than to halt the reckless, headlong expenditures necessary to maintain growing navies and idle armies.

But even to suggest "junking" all our battleships and throwing away our guns is to invite the attack of vicious elements, in a world that still needs policing. We, on the Pacific Coast, should be the last to desire such a result of the conference.

*For slant eyes veil deep secrets and oriental minds do not always interpret promises literally!*

### "Free Ports" and California Farmers

UNUSUAL interest has been aroused by the recommendations of Henry M. Robinson, prominent California banker, who advocates the establishment of free ports and free zones as a means of satisfying both the foreign trader and the tariff advocate, and also increasing our commerce with foreign countries.

Briefly, the proposed act would establish a free zone at a port, where no duties would be applied to merchandise delivered to its wharves unless part or all were taken out for domestic consumption, at which time it would pass through the custom-house and be subject to the regular tax.

The free zone would permit the prompt unloading of a ship within its boundaries without the long delays growing out of custom regulations. This would facilitate the handling of mixed cargoes and would benefit the farmers through greatly increasing the efficiency of our merchant ships, Mr. Robinson points out.

The idea has been drawn up in the form of an act known as the Jones Bill, which its adherents believe will replace bonding warehouses and give the free trader and protectionist common ground on which to meet, with consequent benefit to agriculture and the nation as a whole. The Jones Bill seems to merit the support of the farmers, now so interested in world commerce and coast-to-coast marine freighting.

### Growth of "United States Grain Growers"

INCREASING membership in the United States Grain Growers, Inc., the farmers' co-operative grain marketing organization, is reported from Chicago headquarters.

The addition of more than 1000 members a week for an extended period has been announced in official reports recently issued. Farmers affiliating themselves with this organization are required to sign a five-year contract which gives them the services of farmer-owned terminal facilities; a farmer-owned export company, a farmer-owned cleaning, conditioning and blending plant; a farmer-owned crop reporting organization, and a farmer-owned service department.

Information concerning the Grain Corporation may be obtained from the main office, 593 East Madison street, Chicago, or from the headquarters of the Farm Bureau Federation, Agricultural Hall, Berkeley, California.

The avowed intention of the members is to eliminate the speculation which has increased the ultimate price of grain at the expense of the growers.

Certain interests, long accustomed to dictating prices and terms, are carrying on vicious propaganda against the farmers' corporation.

But observers, hearing their tale of woe, should remember, "Only the truth hurts!"

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CONCISE CONTRIBUTIONS
On practical agricultural subjects are invited. Unavailable manuscript will be promptly returned if postage is included. Preference is given to accounts of actual experiences, telling how, when, where, who and why.

## SOURCES of INFORMATION
*"The Fruit of the Tree of Knowledge"*

THE following new Government bulletins now are available and will be sent free upon request. Address Division of Publications, U. S. Dept. of Agriculture, Washington, D. C. Order by number.

**FARMER'S BULLETIN**

Floors and Floor Coverings..... .1219
Pop Corn for the Home..... 553
Judging Sheep .....1199

**BULLETIN**

Development of Tubers in the Potato 958
Prices of Farm Products in the United States ..... 999

From the College of Agriculture, University of Arizona, Tucson, Arizona, may be obtained four interesting and helpful bulletins (free of charge to Arizona residents).

**CIRCULAR**

Production of Clean Milk..... 37
Rhodes Grass in Arizona..... 36
Selecting Laying Hens ..... 39
The Adobe Milkhouse ..... 38

Two interesting and informitive bulletins have just been published by the Experiment Station of the Utah Agricultural College, Logan, Utah, and may be secured free upon request.

Alfalfa Production Under Irrigation. 45
Irrigation of Aalfalfa .....180

## Tractor Education Needed

"THE tractor compares with some of our rather high-priced pleasure vehicles, and may cost several times as much as the smaller car; yet the majority of farmers do not appreciate this fact and are not as careful with their tractors as they are with their automobiles," said a speaker at a recent power-farming discussion.

"I believe the weakest link in the tractor industry is in the care and knowledge of the tractor on the part of the average operator. Thus I believe that all efforts should be bent towards educating the tractor operator in its proper use and in knowledge of its limitations."

## Unique Tractor Hitch

SAID to cure most of the troubles arising from the ordinary tractor hitch, this new device, it is claimed by the inventor, makes possible short turns without undue strain upon implement or tractor. Also it is asserted the unique hitch eliminates the costly "off-center" pull which causes side draft.

The harmony between tractor and implement obtained by doing away with this usual strain should prolong the life of both, and reduce repair bills and maintenance cost, it is pointed out.

"But what about backing," the experienced tractor operator immediately asks. Backing up with a flexible hitch does present problems, but these may be solved by the use of a heavy timber or a locking device to give rigidity when needed.

### IS THERE NO LIMIT TO HUMAN ENDURANCE?

*Some folks live on promises,*
*And some can live on hope.*
*The girls think they can live on love,*
*But this is not the dope*
*Now I am planning to relate*
*In words succinct and terse,*
*Why I'm still eating,*
*Though my money gets worse and worse.*
—Justin Nutt

(Wonder how long he will [illegible])

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# What I Have Learned About Turkeys

By Marshall A. Stutsman

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THANKSGIVING—a good time to be thankful for the 400 years or more of universal service by that grand old bird, His Majesty the Turkey.

A few specimens of the wild turkey remain in America, but they are becoming more scarce every year. Many persons seem to think that turkeys originated in the country of Turkey. This is absolutely erroneous, the wild turkey being a native American bird, first glimpsed by white men when explorers arrived in this "new world."

Turkeys were domesticated by the Indians and for many generations we have been raising them. Yet the fact remains that there is a secret of success with turkeys that comparatively few people master, and it is generally agreed that they are "difficult to raise."

### BACK TO NATURE

From my experience with large flocks of the birds, including the operation of ranches for market, breeding and exhibition purposes, I have reached the conclusion that wild blood is absolutely essential in maintaining the health and hardiness of our domesticated stock.

Having suffered heavy losses from disease, I purchased two wild gobblers as an experiment. Their superior size and appearance became apparent when they first arrived, but I was more interested in procuring good hatches and strong poults.

The first cross gave me clutches of eggs that produced hatches averaging 97 per cent. The experimental pen consisted of one wild tom and five hens, which produced a percentage of healthy poults far greater than was secured with 7000 eggs, hatching from our regular domestic stock.

Finally, in the commercial flocks, we reduced the number of hens allowed to each tom, from 14 to 8. This proved another revelation in that it increased our success and percentage of hatches and maturing poults. Further investigation of "the rules of the wild" disclosed the fact that one hen to a tom is customary—sometimes two, and occasionally three. And no doubt better success would be obtained were this same natural law applied in breeding domesticated turkeys.

### BITTER EXPERIENCE

I have killed many a tom from overbreeding and lost thousands of weak baby turkeys, and also suffered losses from infertility caused by violating this imperative rule prior to my experiments. The over-bred toms most likely will never get through the moult, and if they do, their weakened condition shows in their progeny the following season.

It is best to breed in separate pens where the toms cannot interfere, handling the turkeys in somewhat the same manner as livestock.

Many commercial breeders now use wild stock, and a number of pure flocks are maintained, most of these having been established with the captured birds or with wild birds raised in captivity from eggs discovered in their natural environment.

*Plumage Is of Primary Importance!*

*Upper left—A tail feather of good type. Upper right—The "primary" feather, showing distinct stripes is good; the other, of mottled appearance, would disqualify. Below—"Hanger" and "tail covert" of desirable type. Note distinct stripe across these small feathers near ends.*

## This Month in the Turkey Yard

THIS is the season of careful feeding for holiday markets. Free range on alfalfa and grain stubble will bring the birds to their best weight in the easiest and most economical way. A good daily feed of corn, wheat, barley and oats just before the turkeys go to roost is advised.

Careful feeding for 20 days usually is necessary to get the birds in shape for market, provided they have access to the alfalfa from early dawn until roosting time.

If free range is not available, the following mash mixture will be found economical and effective: Ground barley, ground wheat or shorts, feed-meal (or ground corn) and ground oats, mixing these four ingredients in equal parts.

To each 100 pounds of grain add 10 or 15 pounds of granulated beef scrap and fish meal, mixing "fifty-fifty" Add two gallons of charcoal to each 100 pounds of feed. Often this will greatly increase the rate of gain. Feed all the birds will clean up of this mash mixture. If it is moistened a trifle they will eat it more readily.

It is well to feed as soon as the birds are off the roost, or even better, to leave the feed where they can get it the first thing in the morning.

Green feed also is necessary; almost indispensable in fact. Alfalfa meal is one form which may be used when no other greens are available. We have fed this successfully on a desert ranch in handling more than 500 birds.

### CULLING FOR MARKET AND BREED IMPROVEMENT

This is the season for separating market and breeding stock. In choosing the breeding birds, careful attention must be paid to plumage. In fact, the plumage is more important with turkeys than with other fowls. Superior plumage means superior physical characteristics and the better the color of the feathers, the better the blood of the turkey.

It should be remembered, however, that good type and size are of equal importance. When judging, in fact, size counts 20 points. It is safe, however, for breeding purposes to apply this rule to the females and disregard it in the toms. (This is contrary to the usual belief; that size is more essential in the male than the female animal or bird.—Ed.) The best and largest turkeys I ever have produced were raised from hens weighing 15 to 20 pounds and upwards, bred to toms weighing only 18 to 25 pounds, yet correct in all particulars as to form and plumage.

My age records show best results secured with hens in their first laying year, bred to yearling toms, and for second choice, 2-year-old toms.

PERSONALLY, THE WRITER ATTACHES SUFFICIENT IMPORTANCE TO THE PLUMAGE QUESTION TO BELIEVE THAT THEREIN LIES THE SECRET OF SUCCESS. By applying the following rules, the breeder will have no difficulty in selecting the best birds, and if his stock falls short of these requirements, he should consider the immediate introduction of new blood. The following suggestions apply to bronze turkeys:

### PLUMAGE OF TOMS

The feathers from the caruncles of the neck to the middle of the back should be a rich, greenish, copperish bronze, brilliant, sleek and changeable, varying from the greenish copper to a dull brown. The ends of these feathers should terminate with a very narrow black stripe. From the middle of the back to the tail "coverts," (continuation of plumage towards the end of the tail) the feathers should be black from the fluff to the tip with a reddish copper showing quite distinctly on each feather for the entire width, giving the effect of a very black stripe at the end. (On less desirable birds these feathers will not show any copper color at all, and the black will be of a bluish tinge.)

*Wild, but Tame!*

*The turkey Mr. Stutsman is holding is of pure wild blood, descended from native birds captured in the mountains of Virginia. Ten years ago an attorney in Los Angeles, the writer of this article deserted his desk for the desert fastnesses of San Bernardino and Riverside Counties. Here he engaged in turkey-production on an enormous scale, herding his birds in large flocks with dogs. He pioneered in the use of wild breeding stock to improve the domestic type. As the result of his venture, he recovered his health, impaired by years of office work, and stored up a vast fund of knowledge on turkey-raising, much of which he will impart to ORCHARD and FARM readers, through a series of articles, of which this is the first.*

### TAIL COVERTS

The tail coverts afford the most conspicuous general guide to quality. Feathers with a thick gray fluff should cover the entire width of the bird, with narrow even bars of black and light brown, running straight across. Next, there should be a black band carrying a solid stripe a half inch or more in width, of red, copperish bronze, changeable to a beautiful bluish copper, very brilliant. In another light, it may show a slight grayish hue.

In domesticated birds this should be followed by a very narrow black strip, terminating in a narrow white edging. However, it has been my experience that when these white edgings fade into a chocolate brown (a noticeable feature of the wild bird) or to a cream color a half inch or more in width, best results are obtained. My best hatches and hardiest poults have come from stock with these brown or cream edgings on coverts and tail.

### ANOTHER IMPORTANT POINT

All pencilings of brown and black should be straight, clear and distinct. Domesticated birds will show more of the greenish hue than the reddish copper, although the latter is more preferable; the former better than none at all. IF YOU FAIL TO FIND IN YOUR FLOCK THE COPPER COLOR, IT MAY BE WELL TO INVEST IN NEW BREEDING STOCK.

The pencilling or bars on these feath-

e[illegible] [illegible] continuous for the entire [illegible]th of the shaft or quill. They should be brown or black with white [illegible]ings on tips which should be a half to three-quarters of an inch wide. A glossy or brownish black stipling showing half the length of the quill indicates serious weakness in the stock.

MAIN TAIL FEATHERS

The tail feathers should have black and brown bars, alternating with black bands an inch or more wide near the ends. These bands should show a bronze streak in each feather to the center. This should be three-quarters of an inch wide, but the birds should not be discarded if no bronze shows at this point; the rule is, the more the better. The edgings should be white, but from the breeding standpoint, cream or brown tips are permissible.

WING FEATHERS

The primary wing feathers should show clear bars. The darker the dark bars and the clearer and whiter the white bars, the better the bird. These bars should show the entire length of the quill. This rule applies to all the primary wing feathers, except possibly what is known as the "upper flight" group. The ninth feather is quite small, but imperfections may be observed readily. It should have white and black bars for the full length. All black disqualifies it.

The wing coverts should be glossy, rich, reddish, copper-bronze, making a wide black band when the wings are folded; the ends forming a black stripe entirely across the bird. The secondary feathers may have a brown edging instead of black. This should be avoided if possible.

BREAST FEATHERS

The breast should carry feathers rich in color, iridescent, copperish-bronze, giving the appearance of a checker-board or squares. The richer and more pronounced the color, the better the blood.

BODY FEATHERS

The body feathers should be black, showing the copperish color very distinctly, especially as the sun's rays shine upon it. The edging is pure white, but varies to cream or brown in the wild birds.

FLUFF AND HANGER FEATHERS

The fluff should be black. The hangers are pure black with a wide, copperish-bronze bar across each feather, these latter having a white termination and a dense, full fluff.

PLUMAGE RULES FOR FEMALES

The females should show practically the same markings as the male, but not so pronounced, with the exception of the "edging," which in front should carry a narrow white stripe, wider toward the back.

COLOR IN GENERAL

The color question studied as a whole, by comparison, when the birds are standing in the early evening sunlight will aid in choosing. Sometimes it may be necessary to catch them and compare closely. Finally, the breeder should bear in mind that it may be impossible to find a complete combination of all these points in one bird. It is exceptional even in the pure wild or the best exhibition stock.

Careful attention to these feather rules, however, with equal emphasis upon form and size when culling or selecting for market should result in the retaining of the best individuals for breeding purposes.

MORE!

There's money in turkeys! Watch for more articles on successful turkey raising, telling how, when and why. Coming soon!


## CORY'S THORNLESS MAMMOTH BLACKBERRY

No one need be longer skeptical about the wonderful claims of superiority made for this novel fruit, for on another year's test, in many localities, it has more than made good in every respect, and will be planted far more extensively than ever before, both for general market and family use. Very enthusiastic reports are coming from Washington, Oregon, Texas and other widely separated sections concerning its remarkably valuable characteristics.

One of the oldest and most experienced commercial berry growers of the famous Gold Ridge Section, where hundreds of tons of berries of all kinds are annually produced, says: "You take no chances when you plant the Cory Thornless Mammoth Blackberry. If you are going to raise berries commercially you can't afford to plant any other and if you want them for home use you will not want any other. You will have no trouble with your pickers when you grow the Cory Thornless as every one enjoys picking them. They are very vigorous growers, produce a good crop when one year old and come into full bearing at two years.'

The Cory Thornless is very large, very early, and has a distinct flavor of its own, very much like the wild blackberry, and decidedly sweeter and finer in flavor than any other cultivated variety.

I am now in position to book orders for a fairly large supply of tip plants which promise to be exceptionally strong and well rooted, for delivery after January 1st, but it is probable that only early orders will secure them as the demand is certain to continue to far exceed the supply.

Prices: Strong plants, well packed and delivered, prepaid, by parcel post to any address, 3 for $1.00; $3.00 per dozen. By express, not prepaid, $15.00 per 100; $125.00 per 1000. Terms: On less than 100, full cash with order; on larger quantities, cash deposit of 20 per cent with order, balance cash on delivery.

Photograph showing actual average size. Selected specimens can be shown three inches in length.

## Our Great Sunset Seed Collection

### A Big Family Garden at Little Cost, for Trial

Fifteen large packages of Fresh, Reliable Seeds of the most approved varieties, all postpaid to any address for **ONLY 50 CENTS.**

BEET—Detroit Dark Red. An ideal beet, unsurpassed for all purposes.
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CUCUMBER—Perfection Evergreen. An improved type of the "Davis Perfect."
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PARSLEY—Champion Moss Curled. Most beautiful and dainty for garnishing.
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RADISH—White Icicle. Most popular in all sections of the country.
RADISH—Early Bird. The sweetest and quickest forcing radish known.
RUTABAGA—King of Swedes. Rich hard yellow flesh of the finest quality.
SPINACH—Triumph Thick Leaved. Very long standing, thick, fleshy leaves.
SWISS CHARD—"Asparagus Beet." Most highly appreciated where known.
TOMATO—Matchless. Finest of all standard varieties for family use.
TURNIP—Purpletop White Globe. Well known and highly prized everywhere.

This Grand Collection if purchased at any store would cost you $1.50, but simply to advertise our "Reliable Seeds at Honest Prices" we mail it complete, postpaid, to any address, for only **50 CENTS.**

## Novelties and Specialties in Flower Seeds

### Price, 10 cents per packet, 3 for a "quarter" or 15 for $1.00

Asters—A superb mixture of all most modern types for cut flowers.
Calandula—New double; of easy culture; long continuance in bloom.
California Poppy—Burbank's Improved. Many rare and beautiful colors.
Carnation, Marguerite—Early flowering annual; double fragrant flowers.
Cosmos "Midsummer"—Early flowering; profuse and long continued bloom.
Dahlia—Seeds sown in early Spring will bloom freely in September.
Heliotrope—A hardy perennial; blooms freely the first season.
Hollyhock—Showy biennials, blooming freely first season. Single and double.
Larkspur—Tall mixed, very bright and beautiful colors.
Mirabilis, or Marvel of Peru—Two feet spreading vine, flowers in great variety.
Morning Glory—Japanese; a rampant climbing vine producing largest flowers.
Nasturtium—Well known profuse bloomers. Tall and dwarf, separately.
Pansy—Steele's Mastadon. Unexcelled for variety of colorings.
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Phlox Drummondi—Most brilliant and profuse blooming bedding plants.
Phacelia Tanacetifolia—Bright, dainty flowers, very rich in honey.
Poppy "Fayal"—Most beautiful and dainty of all dwarf poppies.
Sweet Peas "All Summer"—Remarkable for long continued bloom.
Sweet Peas, Hardy Perennial—Spring up early and bloom all summer.
Verbena, "Mayflower"—Largest flowers; wonderfully bright.
Wild Garden—Greatest variety of both native and foreign annuals.
Zinnia—Largest Dahila-flowered, mixed.

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### Two New Legumes of Immense Value Which May Add Millions of Dollars to Our Nation's Wealth

THE MONANTHOS LENTIL. This, in addition to being a valuable cover crop and soil enricher, is also a new source of human food as nutritious as the best of beans, yet grown at far less cost, as it may be abundantly produced on poor land, which is thereby made richer for following crops. These do best when sown in fall or winter in this State, and every farmer and fruit grower should try them. Price of inoculated seeds, 2-oz. pkg., 15 cents, $1.00 per pound, postpaid.

HUBAM CLOVER. No plant ever sprang up so quickly into public favor as the new "Hubam" or annual white sweet clover. Very valuable as a cover crop, forage crop, and bee pasture, being regarded as the greatest honey producer ever known. Is being extensively grown as a preparatory crop for alfalfa. Pkt. 10 cents; ounce, 25c, pound, $2.50, postpaid.

## Feed Your Mind as Well as Your Body

Although my specialties have been improved fruits, vegetables, grains, etc., calculated to supply finer foods to tickle the palate and nourish the body, I feel that many of my customers do not realize the great importance of also selecting the kinds of literature best calculated to nourish and develop the mind as well body, and so take pleasure in calling attention to

### THE WORLD'S BEST PERIODICALS

for Country Readers. For many years I have acted as subscription agent for some of the greatest and most popular National Magazines, most of which I myself read, and occasionally patronize as an advertiser. Don't forget that whatever your crop specialty, or vocation may be, your most important business and duty on earth is to help properly develop the minds of the rising generation, and that in no other way can you so surely and cheaply guide these young minds, as to keep the right kinds of reading matter before them. And in carrying out this idea I will greatly appreciate your action if you will kindly favor me with your subscription to any of the following, and all such remittances will be credited to your standing as a prize contestant. Please always state if the subscription is new or a renewal:

| | | | |
|---|---|---|---|
| The Saturday Evening Post, weekly | $2.00 | Orchard and Farm, monthly | 1.00 |
| The Country Gentleman, weekly | 1.00 | Farm and Fireside, monthly | .50 |
| The Ladies' Home Journal, monthly | 1.50 | Farm Journal, monthly (4 yrs., $1) | .50 |
| The American Boy, monthly | 2.00 | Successful Farming, monthly (4 years for $1.00) | .50 |
| Woman's Home Companion, monthly | 1.50 | Farm Life, monthly (4 yrs., $1) | .50 |
| Pictorial Review, monthly | 2.50 | Household Journal and Floral Life (4 years for $1.00) | .50 |
| American Fruit Grower, monthly | 1.00 | | |
| American Magazine, monthly | 2.50 | | |

SPECIAL OFFER—A four year's subscription to the Household Journal (combined with Floral Life) the great fiction, fancy work and fashion magazine, will be presented entirely free of cost to any person who favors me with cash orders for other publications named above to amount of $4.00 or more.

Or I will give my Great Sunset Seed Collection, 15 large packages of vegetable seeds, worth $1.50, free to any one sending $2.00, $1.00 each for a four year's subscription to both the Household Journal and Farm Life, two of the best home monthlies published. These offers good until Christmas Day.

Don't forget what an elegant Christmas or birthday present one of the above will make to some country friend. It will be a constant reminder of your sincere regards, and I will notify them of your action if you desire.

## STINGLESS HONEY BEES

I have developed a strain of Golden Italian Bees which are so tame and gentle that the hives are opened and frames handled without smoke, veil or gloves, and it is very seldom that one shows any inclination to sting. Free demonstration cheerfully given anyone at my home. A few colonies of these are for sale at $8.00 to $12.00 each.

## GREAT CASH PRIZE CONTEST

**Calaca mpotre rolphe langlo lancha lfante lopesc aderod eolema rieopa lermod estoma lescal onoukl andrad elanto wlemon groven lcelan derson oraeth anacto navarr oyogra nderso nomano rluger berend annhei mperla ltouta rionol indarw iudsor osisqu occlde ntalma genese eleyre karlot ustlns ouheac hicoal ingard enapar adiseb astopo letall acresc entaho eucant opanga ltujun gaviot amalpa isleto nealsa ngerip ondela uordec otocal ojmaran clmaln rkspur amonap lesmer eldavi saliaq uasilo muripo santar osamon delman tereyu caipas adenal ranulco roundo spalos ollvos elmari tomant ecupit olafay etters burgle nhurne ttehac huplru therfo rdiabl ooming touyxe mpires edudid ominor ialtop azusan juanba utlstu teline edlesp artorr auceme nterpr lsespe anutud orrist altarp unajuug**

In the above lines may be found the names of a number of California towns plainly printed but hidden only by the letters which precede and follow them. How many? To the person submitting the best prepared and nearest correct list will be awarded a cash prize equaling ten times the amount which they have sent me for anything I advertise, up to $100. The second to tenth best lists will also be awarded prizes from $75 to $10. This contest is free to all, but if no money has been sent, prizes will range only from $10 to $1.00, according to merit.

All lists must be mailed on or before Christmay Day, written on one side of a sheet with nothing else on it but name and address of sender. Names must be numbered in the order in which they are found in the above lines. Names to be counted must appear in U. S. Postal Guide for 1920, which any postmaster will show you.

**ISAAC F. TILLINGHAST,**

**1149 Orchard Street** **Santa Rosa, Calif.**

## You'll get somewhere with a pipe and P. A.!

Start fresh all over again at the beginning! Get a pipe!—and forget every smoke experience you ever had that spilled the beans! For a jimmy pipe, packed brimful with Prince Albert, will trim any degree of smokejoy you ever registered! It's a revelation!

Put a pin in here! Prince Albert can't bite your tongue or parch your throat. Both are cut out by our exclusive patented process. So, just pass up any old idea you may have stored away that you can't smoke a pipe! You can if it's P. A. for packing!

What P. A. hands you in a pipe it will duplicate in a home-made cigarette! P. A.'s a cinch to roll because it's crimp cut and stays put!

*Prince Albert is sold in toppy red bags, tidy red tins, handsome pound and half pound tin humidors and in the pound crystal glass humidor with sponge moistener top.*

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*Keeps your tractor on the job.*

*A grade for each type of engine*

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# "BOB" JONES' CORNER

## Little Stories of Farming

By ROBERT E. JONES—

Contributing Editor of Orchard and Farm.

**Margin Above Cost**—Margin above cost of production is the thing to be considered in farming—not gross production. This is well brought out in a recent farmers' bulletin issued by the Federal Department of Agriculture, Bulletin 1088, on "Selecting a Farm." A quotation in point is as follows: "It is obviously essential to the success of any farm to grow crops and to keep livestock that return enough to pay more than the cost of production. On a certain farm it took 32 bushels of corn to cover the bare cost of growing the crop. When the farmer harvested 33 bushels he had a margin of but one bushel over and above the cost. On a farm across the road it took 34 bushels to pay the cost of growing the corn, but the farmer harvested 50 bushels—a margin of profit sixteen times greater than that of his neighbor. Such margins represent the difference between success and failure."

Similarly, in the use of water. I know an El Dorado foothill farmer who told me it cost $25 an acre per year to irrigate his orchard. Neighboring farmers skimped along on from $5 to $10 worth of water. But the farmer who used $25 worth got a big price for that water when he sold it in the form of fruit.

**Great Irrigation Project**—T. H. Ramsey, president of the California Cattlemen's Association, a director of the State Fair, and banker of Red Bluff, has taken the initiative in a scheme for the irrigation of approximately 15,000 acres of land along the Sacramento River ten miles northwest of Chico. Alden Anderson, Sacramento banker and one time candidate for Governor, also is interested in the project. The matter has been taken up with Austin B. Fletcher, head of the State Public Utilities Commission, and Dr. Elwood Mead, head of the Land Settlement Division.

**Fruit by Water**—I have just come across an item from the Fruitman's guide of New York referring to water shipments of fruit from the California coast. The comment of this journal should be of particular interest to citrus growers and a quotation from the item follows:

"During the first six months of the transportation of California citrus fruits to the East Coast by the water route on the steamers of the Atlantic, Gulf and Pacific Steamship Company, there were 90,427 boxes of lemons and 41,310 boxes of oranges, making a total of 131,737 boxes, delivered to Atlantic Coast ports, according to figures given out by the company here. The cargoes were consigned to New York, Boston, Philadelphia, Baltimore and Savannah, and three of them were for transshipment to European ports. In addition to a big saving in freight rates it has been demonstrated that the shipments by the water route equal those sent by rail in respect to the condition of the fruit upon its arrival at the point of destination. It is estimated that there is a saving of approximately 60 cents a box on the lemons and 70 cents a box on the oranges by the water route. With a total of 131,737 boxes shipped through the Panama Canal during the first six months, the citrus growers of Southern California have, on this basis, realized a saving of $83,173.20 in transportation charges.

**Best Spot in World**—Herbert Fleishhacker, San Francisco banker and a member of the California Land Settlement Board, stated the other day that California is the most fortunate spot in the world. The new reason? Because of the diversity of its products. We have known that for a long time. The last report on value of crops issued by the Federal Department of Agriculture indicated it. When the big drop in value of farm crops came California did not experience that disastrous general decline that occurred in other parts of the country. For 1920 California stood fourth among the States of the Union in value of farm crops, while the State's position in 1919 was sixteenth. Undoubtedly organized marketing methods led by men with the interest of growers at heart also played a part.

**Kiesel on Board**—Fred W. Kiesel, Sacramento banker and a breeder of Holstein Friesian cattle, one time president of the California Holstein Friesian Association, has been named representative on the Coast for the War Finance Corporation. This new child of Uncle Sam's is designed to help farmers by extending credits. Credit already has been extended to the California Prune and Apricot Growers' Association, with headquarters at San Jose.

**Follow California's Lead**—Following the lead of California farmers, the tomato growers of Eastern Texas have organized an association for the co-operative marketing of their products. Heretofore they have been at the mercy of the cash buyer. This year the growers shipped their own tomatoes to the extent of 700 carloads, which brought approximately $1000 a car, and made money. Happiness has reigned about Jacksonville, Tex., since the East Texas Tomato Growers' Exchange came into existence. All the tomatoes were sold at the price set by the association and this year no tomatoes spoiled in the field as in the past. Californians know how it works—no need to say more.

**Breed and Pasture**—"Breed counts for more than pasture" is a wise old saying among stock breeders. Did you ever stop to analyze it? Breed means the pastures of countless years, the environment that has surrounded the animal's ancestors since the beginning, concentrated in the final descendant, the living creature of today. Pasture means only the environment over the brief span of a lifetime. How, then, could the environment of one lifetime count against that of ages? But we are bound to admit that when well-bred animals are maintained in the Pacific Coast States, where the seasons are long and green feed is available almost the year around, this good breeding has a chance to show what it can do. Witness the performances of the great dairy cow, Tilly Alcartra and her numerous sisters of lesser brilliance; witness the winnings of our California College of Agriculture stock when shown in competition with animals from other parts of the world! If pure breds are to become super-animals, why not in the Pacific West, where handicaps are less?

**Farm Photography**—There's a young man in Sacramento known to hundreds of farmers throughout this California who has a right to place in this "corner." He is Harold McCurry, who has made the photography of farm scenes and livestock his business. McCurry started "shooting" photos of actresses and the like, but his love for the open country, the lure of the land, carried him away from that work and today his rural pictures are known over the Nation. McCurry started in a small way, but has made a business success of his idea. He made it by working hard and studying what the

[illegible] and what the farm magazines liked to print. There's an art in photography, farm photography, particularly. Farm magazines don't like to print flat, dead pictures, but prefer pictures with life, showing action, and depicting scenes that are striking and artistic. McCurry's close study of these needs led him to success.

**The Indian Band**—To me, one of the most impressive things at the recent California State Fair was the Sherman Indian School band. These young men held forth in the Educational Pavilion, entertaining with popular selections and the classics, drawn from every Nation on the globe. In makeup they were like our young men of high school age, with hair cut in the latest fashion, and, save for the copper color of the native American, they might have belonged, in general appearance, to one of the European races which helps to make up our cosmopolitan population. As they played, I visioned their forefathers, tramping the primeval forests with crude weapons, in search of game, and scratching the soil with forked sticks to grow corn, their maternal ancestors grinding the grain on flat stones, not more than two hundred years ago! "Isn't civilization wonderful?" And yet, I wonder if they are as happy as their forefathers were!

**Merritt Stops the Break**—Ralph Merritt, formerly Comptroller of the University of California, is gaining an enviable reputation as a diplomat. He is certainly a young man to inspire confidence. Under him the California rice growers, who have been marketing co-operatively for several years, under the name of the Pacific Rice Growers' Association, have been able to avoid a split in the ranks. Merritt is the new president of the organization which threatened to break up because of internal dissention. Great credit for saving the situation also is due to Harry Maddox, State Market Director, who is said to be responsible for injecting Merritt into the breach. Merritt attained prominence in California during the war when he was Food Administrator for this State.

**Guilford on Committee**—Governor William D. Stephens has just named the committee to investigate the California College of Agriculture and determine whether it should be centralized at Davis where the University Farm is located. At present, agricultural theory is taught at Berkeley and the practical end of farming at Davis. One of the strong members of the Governor's committee is W. S. Guilford of Butte City, a young man who has had wide experience in farming. His early training was secured in the Wisconsin College of Agriculture, after which he spent some time in farm journalism. He has developed agricultural projects in Idaho, Colorado and California and in recent years has been in charge of his own farm, Butte City Ranch. Guilford has written several books on agriculture and has given a close study to the educational side of the industry.

**SWAPS AND SWAPPERS**

It is remarkable how many deals are made through ORCHARD and FARM'S "Classified Market Place." Everything from baby chicks to farm land may be found offered for sale. And a little, inexpensive ad may be the means of disposing of something you do not need. You can make and save money by reading the pages 30 and 31. Make it a habit to consult this valuable department.

"Yours Highly—[illegible] hence my [illegible] ORCHARD and FARM is [illegible] t [illegible] visible copy." [illegible], Calif.


# Plant an Orchard

*Our foothill soil and location produces a tree that for hardiness, good roots, and freedom from disease cannot be duplicated by any other section*

**Growing fruit is the best paying business in California.**

The acid test of any business is not what it will do under favorable conditions but what it will do under adverse conditions.

Even under this year's depreciated values, the orchardist with a block of **Prunes, Bartlett Pears, Apricots, Cherries, Raisins, Shipping Grapes, Clingstone Peaches, Drying Peaches, Fall Pears, Almonds, Shipping Peaches, Shipping Plums, Canning Plums,** and **Figs** will make more money than the grower of grain, hay, alfalfa, beans, rice, or the dairyman.

The trees you plant now will, five and six years hence, assure your share in the profits inherent to the California fruit grower.

The supply of trees in the State available for planting is not over 60 per cent of the trees budded last fall. **This will result in a shortage of some of the best standard varieties.**

**We offer for your planting the most complete assortment of commercial fruit varieties.**

Our trees are the best that care in propagation and efficient workmanship can produce.

Our catalogue, full of accurate practical horticultural information and suggestions, and our thirty years' experience in fruit growing and fruit marketing, are at your service for the asking.

Submit us a list of your tree wants for quotation while the varieties you desire are still available in our foothill grown stock.

Write me today.

J. E. Bergtholdt
*Sec. and Mgr.*

*Member of Bud Selection Association of California*

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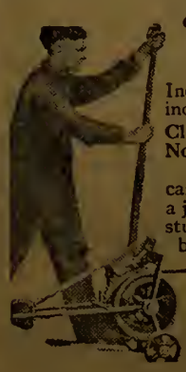

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*Sell What You Don't Need*—It costs little to advertise in ORCHARD and FARM'S "Classified Market Place." See pages 30 and 31.

*"Farms for Sale"*—is but one of the many departments of ORCHARD and FARM'S "Classified Market Place." See pages 30 and 31.

# Insure Your Fruit Crop Now by Spraying

California Peach Blight, curl leaf and other diseases take this time of the year to get a good start on deciduous trees. But they are forced to quit before their attack is fairly under way when they find an orchard in which the owner had the foresight to

SPRAY WITH

## ORCHARD BRAND

| | | |
|---|---|---|
| B. T. S. (dry barium sulphur) | 40-50 lbs. | 200-gal. tank |
| or Bordeaux Paste | 36-40 lbs. | |
| or Bordeaux Powder | 18-20 lbs. | |

If the scale insects are present, or if more sticking qualities or penetration are desired, add Miscible Oil and Glue to the above formula as outlined in our Deciduous Bulletin.

## UNIVERSAL BRAND

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|---|---|
| Dormant Soluble Oil | 12-15 gals. |
| Crude Oil Emulsion | 20-25 gals. |

IF SCALE INSECTS ALONE ARE PRESENT

Fruit buds and fruiting woods will be seriously handicapped later on unless you give them their chance now. And they haven't got a chance if injurious diseases are allowed to take hold during the rainy season.

Our Bordeaux sprays, made from the highest grade materials and combined by chemical processes, are standard. Their uniform composition gives the greatest efficiency. In the end, they are less expensive than home made mixtures.

Our expert entomologist, Paul R. Jones, will gladly solve your spraying problems. Send today for your free copy of his latest bulletin on deciduous spraying.

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We have sold TURKEYS for our shippers for the highest prices Turkeys ever sold for in the State of California, and we are expecting to do the same during the Thanksgiving and Christmas Holidays. Please write us how many Turkeys, live or dressed, and Chickens we may expect from you, and when.

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Honey, Green and Dried Fruit, Grain, Broomcorn, Corn Husks and General Produce Commission Merchants.

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# Partnership With the Bee

By W. B. Dickenson

WRITTEN ESPECIALLY FOR ORCHARD AND FARM

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## Part III—Swarming, Natural and Artificial

THE swarming season is of unusual interest to the bee-keeper. The issue of swarms is dependent almost wholly upon continued fine weather. April is the greatest swarming month in California.

If the season is favorable, the spring flowers seem scarcely to have appeared before the swarming fever begins to steal over the colonies.

The first steps of preparation are the rearing of drones through a deposit of eggs in the drone cells by the queen. As these mature and throng the entrance, if the weather is warm

*Clustered Natural Swarm in Tree, (Note Hive on Ground Below.)*

and honey plentiful, a few queen cells will be commenced by the workers. These are built up on the combs with their open end downwards.

From three to ten cells usually are constructed and the eggs or larvae are plentifully supplied with "Royal Jelly"—a pungent, stimulating, light, creamy substance. When finished and sealed over, they are about an inch long and resemble a peanut in shape and appearance. These queen cells easily are found by looking over the combs about the time swarms are expected; they cannot be mistaken.

It is much better always to swarm bees artificially, but since they sometimes will swarm even when carefully managed, all should understand the indications of swarming and the mode of hiving. Bees are not apt to swarm before the hive is strong in numbers. But when young bees are hatching in abundance, drones are flying, the weather is pleasant, and one or more queen cells are capped over, the swarm is ready to leave.

### NOISES UNNECESSARY

If the bees are overcrowded and insufficiently ventilated, they may come off soon after their queen cells have been commenced or even (though very rarely and in the case of Carniolans only) before queen cells have been started. The first clear day generally is chosen. The practice of beating on pans, and otherwise making a general racket as the swarm issues now is a thing of the past. The ancient practice of ringing bells and making noises may have been to warn neighbors and hold ownership of the swarm. However, it is maintained even by some modern observers that a noise does dispose the bees to settle, and that this old belief (now almost universally discredited) is justified.

After flying a short time the swarm usually clusters on a small branch near the hive, generally fairly low. Hives should be kept in readiness, with full sheets of foundation in the frames, as success depends greatly upon promptness in hiving the swarm. If left long hanging in the sun, they may fly off and become lost.

The process of hiving is extremely simple; if the hive is cool and clean, the bees are not slow in taking possession. To hive, procure a box about the same size as the hive, and shake, brush or jar the bees into this; then pour in front of hive entrance, which should be deepened temporarily by placing an inch block between front of hive body and bottom board. The new home is promptly discovered by some of the bees, and the tiding communicated to all, and in a short time the whole swarm will have entered.

### ENTRANCE MUST BE CLEAR

See that no twigs, dead leaves or dust obstruct the entrance, if the ground is dusty, it is best to spread a sheet and place the hive on this, as much dust is fatal to bees. Watch the hive; if they settle down, the queen is present, but if they go back in large numbers to the first clustering place, repeat the operation.

Some prefer to shake the bees directly into the hive; both methods, however, accomplish the same object. When you are satisfied that the swarm has settled down definitely, remove to permanent location and give the new swarm three frames of brood and honey from the old hive. Replace same with frames of foundation. This will give the swarm a good start and most likely will prevent the old colony from swarming again. (It must have plenty of super room, however.)

If weather continues fair and warm, give the swarm a super as soon as the combs are completed and filled with brood and honey, which in the case of a good swarm should be in about fourteen days.

### ARTIFICIAL SWARMING OR DIVIDING

It should be understood that honey production and rapid increase cannot be expected in the same season. The desire for making a large increase in the number of colonies quickly, has had a more disastrous effect upon the business of bee-keeping than all other causes combined. The maker of too large a number of colonies has gen-

*A Strong Colony About Ready to Swarm Naturally, or "Ripe" for Artificial Swarming.*

erally to feed them during the summer, only to lose them the following spring, so that instead of profit he loses both money and bees.

Experience teaches all bee-keepers that their greatest difficulty is not in the multiplication of colonies, but in preventing their multiplication, or in controlling the time and manner of increase. By no other means is it

possible to attain real success in honey production.

Choose a warm day and see that conditions are the same as if the bees were about to swarm naturally, with the exception that it is not necessary that queen cells should be started. After giving a little smoke, take half the combs with the adhering bees out of the old hive and place into the center of the new one. (It is not important which half has the queen, but it is important to see that both halves contain eggs or queen cells.)

AS TO QUEEN CELLS

If queen cells are started or completed, so much the better, as the division which has to raise their own queen will save time. The eggs are very small, white in color and of an elongated egg shape. They are easily discovered in the center of the base of the cells containing them; one in each only. They will be found standing on end for about twenty-four hours after being laid.

From that time until they hatch, they are on their side. Remove the old hive with all the remaining bees to a new stand, and place the new hive on the old stand; the old hive now will have by far the larger number of bees, as there will be many on the sides and bottom; the new hive will have only the bees that were lifted out with the combs; those that return to the old stand will equalize numbers. In each case, fill up the hives with frames containing full sheets of foundation. In about three days, examine both hives; the one that has started queen cells or is caring for its queen cells is raising a queen and is the queenless division; in about twenty-two days they should have a young laying queen of their own raising, or if they already possessed capped queen cells at the time of division, this will require only about eight days, the exact time depending upon the stage of development of the cells.

[The fourth article by Mr. Dickenson will appear in an early number.—Editor.]

**SECRET OF SUCCESS**

**The most important rule in beekeeping is to keep the largest possible number of bees in the smallest possible number of colonies. —W. B. D.**

## Plowing With Horses Close to Tree Rows

IN WORKING close to the trees in an orchard, the following method was found more efficient than the use of rigid "offsets" and better even than working with the best heavy horse, well broken to single plowing:

The double trees were narrowed as much as practicable. A neck yoke chain about eighteen inches long was used to fasten them to the plow clevis, which was set over on the plow as much as necessary.

The nigh horse was held in the furrow, which threw the off horse upon plowed ground, but absolutely no trouble was experienced in driving the team. However, since the nigh horse preferred the furrow to the uncertain ledge next to the trees, he resolutely crowded the off horse back if the latter attempted to pull in toward the furrow.

With this hitch a light team pulled an ordinary two-horse plow with slow, steady power. The team could be driven slowly, as in the open field, and still have plenty of reserve pull. This made it possible to do very careful work, resulting in a marked improvement in tillage next to the trees.

A uniform furrow, either deep or shallow as desired, was opened to the very center of each row. Furthermore the ease of this method has encouraged working up to one row and away from the next each year. This process alternated keeps the ground level and lessens by half the work of opening rows.—Roger Searle, Napa, Cal. (H)

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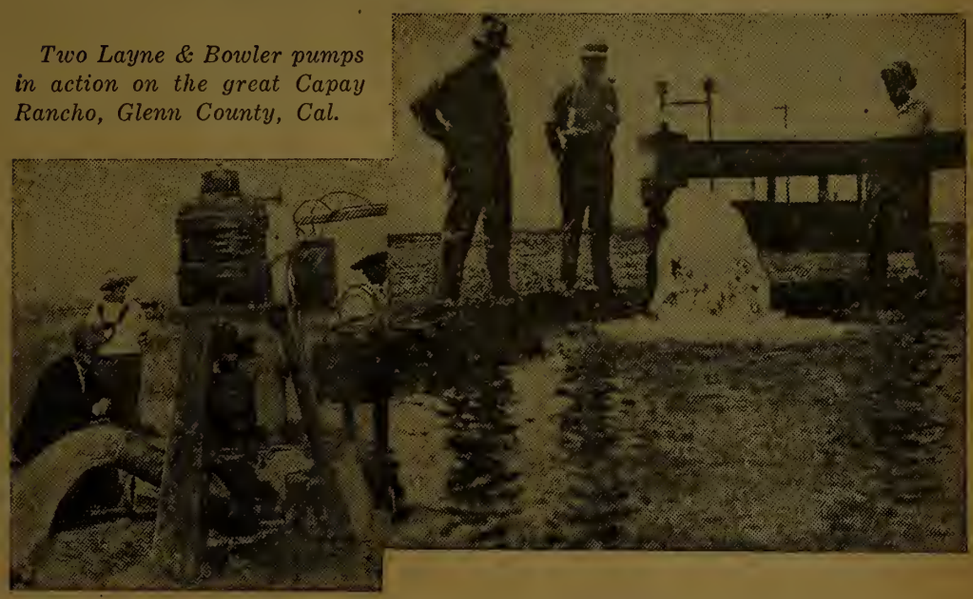

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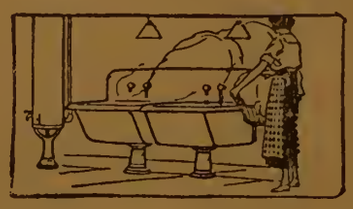

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# Dehydration of Grapes

By Arthur W. Christie

Assistant Professor of Fruit Products, University of California

## Part II—Methods Developed in Successful Practice

ANY reader who desires to make a first-hand study of dehydration should inspect the University Farm plant, at Davis, which, with improvements and additions recently made, is considered representative of the most successful type of farmers' "utility" outfit.

Bulletins 322 and 330, "Evaporation of Grapes" and "Dehydration of Fruits" (available upon application to the Agricultural Experiment Station, Berkeley) give results of experiments with this plant in drying other fruits, as well as grapes. The following technique was developed largely as the result of tests made at the University Farm.

Grapes intended for dehydration should be allowed to reach their maximum sugar content before picking. Grapes below 20 per cent sugar do not give a satisfactory dried product. The yield of dried product increases rapidly with increase in sugar, and it is best to pick only grapes containing 23 to 25 per cent sugar. When one is not dependent upon sun drying, often it is possible to delay picking until a later date and gain the increased yield resulting from the higher sugar content. The use of a simple saccharometer is valuable in determining the proper time of picking.

*Sulfuring Fruit at University Farm Dehydrating Plant, Davis, Cal.*

### DIPPING IS IMPORTANT

In all efficient dehydraters, lye-dipping reduces the drying time of grapes to 40 or 50 per cent of the time required for undipped grapes. Dehydrating undipped grapes so reduces the capacity and increases the cost as to make the process unprofitable. Lye-dipping and rinsing not only "check" the skins so as to permit rapid evaporation of moisture, but also wash the fruit thoroughly.

Dipping may be accomplished either in small hand dippers such as used for prunes or in large automatic machines such as the "Dunkley" lye peeler used in many canneries.

It is essential however, that the lye solution be maintained at the boiling point. With small dippers an oil burning furnace is most satisfactory. The strength of lye varies from 5 to 20 pounds of concentrated lye per 100 gallons, and the time of immersion varies from 3 to 30 seconds.

In general, the weaker lye for the shorter time is used on Thompson Seedless and Tokay grapes while the long dip in strong lye is necessary for Muscats and many thick-skinned wine grapes. If the lye is too weak or cold or the time too short, the skins will not be checked, while if allowed to remain in the strong dip too long the grapes will peel or split and much juice may be lost.

### STEAMING VS. DIPPING

Steaming the grapes on trays has been tried as a substitute for lye-dipping. With Tokay and Thompson Seedless grapes, steaming for 10 minutes checks the skins and permits as rapid drying as lye-dipping, but in the case of wine grapes, steaming merely causes the grapes to burst, with much loss of juice. Steamed grapes do not appear as clean and glossy after drying as do lye-dipped grapes.

### TYPE OF TRAYS

The usual size of tray is 3 feet square. If the grapes are to be sulfured, wooden, slat-bottom trays must be used; otherwise, screen trays commonly are employed. Screen trays are more expensive but more substantial. Solid bottom trays, as used in sun-drying, are not satisfactory for grape dehydration, as the under side of the bunches are retarded in drying.

A tray will hold 3½ to 4 pounds of grapes per square foot, making about 35 pounds per each 3x3 foot tray. In "tunnel" dehydraters, these trays are placed on cars in one or more stacks of 20 to 25 trays, the sides of the trays being of such height as to allow at least a 3-inch space between them for passage of air.

### AS TO SULFURING

Raisin grapes, except the bleached seedless raisins, are not sulfured. Both

*Dehydration History in the Making*

*In this unpretentious building, experiments of utmost importance have been carried out. This year more than five carloads of cull Tokays, purchased for $17.50 a ton, were dried here at a cost for power, fuel, labor and box shook of only 2 1-4 cents a pound. Formerly these culls would have been taken by wineries. This year, had they not been saved by dehydration, they would have been used for hog feed. The plant is one of those operated by the American Fruit Growers, Inc., at Lodi.*

[illegible] and white wine grapes, developed at the University Farm, are sulfured 1 to [illegible] hours. It was found that such mildly sulfured grapes reproduced the natural fresh color of the grapes when used in beverages made from the dried product, while unsulfured grapes, especially white varieties, tended to give a brown-colored juice. The small amount of sulfurous acid retained also is a factor in preventing spoilage during storage.

TEMPERATURE AND TIME OF DRYING

The usual method of dehydrating has been to start the grapes at a temperature of 100 to 120 degrees in air of relatively high humidity, move the grapes gradually toward the source of heat and finish in dry air of 150 to 170 degrees.

The normal drying time for dipped grapes in an efficient tunnel dehydrator, under such conditions, is 15 to 20 hours for Thompson Seedless grapes, 20 to 24 hours for wine grapes and 24 to 30 hours for Muscats. Grapes will withstand over 200 degrees without injury as long as they contain an excess

*"Dumping" Dehydrated Grapes*

of moisture, but when nearly dry are liable to injury if heated above 165 degrees.

The "parallel current" system in which the initial drying proceeds very rapidly at 200 to 210 degrees and the final drying is completed at 150 to 160 degrees, appears very promising for grapes and will be given a thorough test this season. If satisfactory in other respects, this system will reduce the above drying times about one-half and thereby double the capacity of a dehydrator.

METHOD OF STEMMING

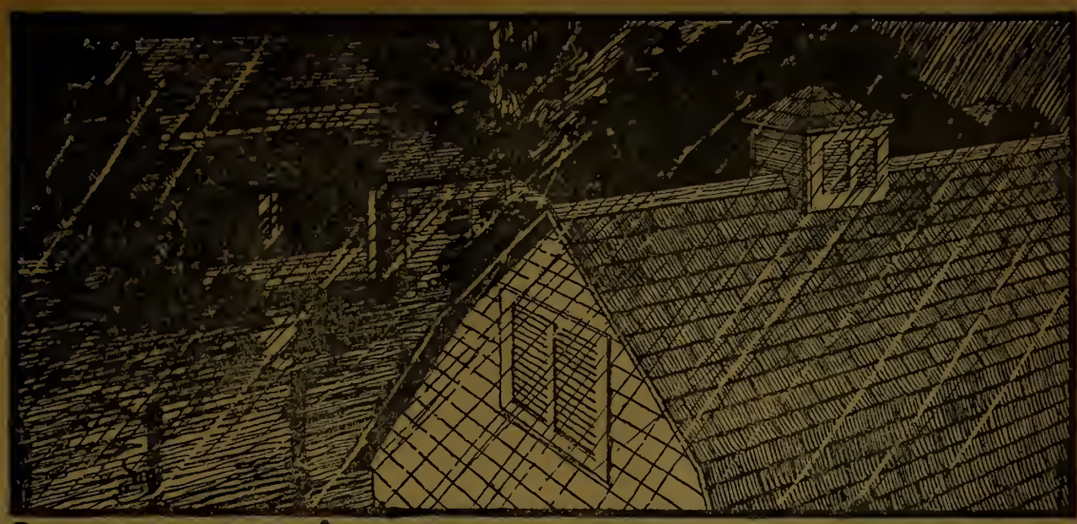
In order successfully to stem dehydrated grapes, their moisture content must be reduced below 15 per cent. The dried grapes should be scraped from the trays and stemmed as soon as cold. Insufficiently dried grapes or those which have been stored in bins do not stem satisfactorily. If allowed to sweat after drying, the dry brittle stems reabsorb moisture from the raisins or the air, and their separation from the raisins becomes very difficult.

STEAM PROCESSING

Careful tests show that dehydrated grapes not exceeding 23 per cent moisture content will keep indefinitely. Since the grapes necessarily are overdried to permit stemming, it is desirable to return sufficient moisture to secure a content of about 22 per cent. This often amounts to a 10 per cent increase in weight. Laboratory and commercial tests have shown that steam processing not only sterilizes the grapes and makes them more pliable for packing but also affords a simple means of returning any desired amount of moisture.

A satisfactory system consists in

(Continued on Page 31)

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# Is Grinding Valves Unnecessary?

By James Koeber

Instructor, Agricultural Engineering Division, University of California. Member, American Society Agricultural Engineers.

WHENEVER and wherever systematic instruction is given by service men, teachers, or instruction books in the operation and care of any of the many types of gas engines now in common use, considerable emphasis is placed on the care of the valves. Oiling the stems with a half-and-half mixture of oil and kerosene usually is recommended for those with exposed valve stems. Occasional grinding is recommended for all.

This latter is all very well in its place; for example, when the valves are first fitted or after refacing a valve or seat, it is very necessary to grind them in carefully in order to secure the perfect fit so essential to the proper operation of all four-stroke gas engines.

HOWEVER, THE WRITER IS CONVINCED (FROM HIS OWN WORK AND THE OBSERVATION OF ENGINES UNDER HIS CARE), THAT UNDUE EMPHASIS HAS BEEN PLACED ON THIS OPERATION WHICH ALWAYS NECESSITATES LAYING UP THE OUTFIT AND THE LOSS OF SEVERAL HOURS ON THE PART OF THE OPERATOR.

### RIGHT START IMPORTANT

It has been found that by starting with the valves properly ground, and with an engine on which valve stems are readily accessible, it is possible to keep them in very nearly perfect condition for many months by merely turning the valve one-quarter to one-half turn daily. Often this will enable one to use an engine until it is necessary to take it down for refitting rings, reboring cylinders or other similar jobs without giving the valves any attention except oiling the stems and the daily turning.

The explanation is simple. If a piece of carbon remains on the valve or seat instead of passing out with the exhaust gases as it should, it holds the valve away from its seat, causing a slight loss of compression which gives carbon a chance to form a layer. Turning will tend to remove it. If it is not removed, the valve may become pitted, rusted, or burned. If it is permitted to move up and down hundreds of times per minute for days and days, the pit on the valve will become deeper, possibly larger, and that portion of the valve seat with which it should come in contact will not be worn down uniformly, which can result only in making both valve and seat irregular. Turning the valve is nearly certain to overcome this condition.

On the other hand, with long continual use, a rim, with which all repair men are familiar, will form on the valve, or seat, or both. This should be removed by refacing and again grinding to a perfect fit.

### ADDITIONAL BENEFITS

Occasional turning of valves also will cause the stems and guides to wear uniformly and will lessen the tendency of valves to stick in their guides. Observations have been made on a 30 h.p. tractor engine operated for five months doing plowing, discing, etc., for 10 hours per day, with valve stems oiled and turned daily. At the end of the period, the valves did not require grinding. It was used two months more with absolutely no valve trouble. A 75 h.p. tractor engine which had been in use for 12 months was run for six months more, plowing 28 days per month, 10 hours per day, with the valves cared for as mentioned above.

At the end of this period the engine was rebuilt and valves faced down and ground in. Observations also have been made on several small one-cylinder engines and a 125 h.p. marine engine with similar results. In no case did a valve warp, pit, leak appreciably, stick in its guide, or wear out of round. There is no doubt but that this is applicable to many more types of engines than those mentioned.

This experience has proven to the satisfaction of the writer that undue emphasis is placed on the importance of valve grinding by all kinds of instructors dealing with four-stroke cycle engines. WITH PROPER AND PERSISTENT CARE THE BUGABOO OF VALVE GRINDING MAY BE DONE AWAY WITH ALMOST ENTIRELY.

## Truck Hint

Two sets of back wheels for a Ford truck effect a big saving, the solid tires to be used when making heavy hauls and the pneumatic tires for light loads.—Mrs. J. T. Lovell, Montclair, Cal. (II)

# Naming the Tractor

*By W. H. Gardner*

Illustration by George Grant.

WHEN Old Sol crowed in the barnyard, mother was quick to rise
Her steps were sort o' shuffin' and puffy red her eyes—
But—she wan't one to carry on—just built a rousin' blaze.
(Folks got up nighty early in them old horse farmin' days!)
She boiled the coffee, fried the eggs, and crisped the bacon thin—
And the table it was ready when the hired men stomped in!

NOW, we kept 40 horses—that meant eleven men,
All scattered 'round the section; and 'long about nine or ten
I had to pack out lunches, a job I didn't mind—
But in the swelterin' kitchen, mother was left behind.
And every blessed afternoon, no matter how hot 'twould feel—
She stood over th' cook-stove, gettin' th' eveuin' meal!

BUT dad has sold the horses—and fired the hired men,
(And I wake up a-stretchin', then snuggle to sleep again!)
For since we got the tractor, there ain't so much to do,
The' horses made th' trouble—them and the hired crew!
There's no more creakin' down the stairs by light of the mornin' star
Says mother, "Call it a 'tractor,' boys—for me it's a PLEASURE CAR

## Eliminating Sluggish Fruit Trees

(Continued from Page 11)

50 per cent of the remaining seedlings were discarded as undesirable types. Some of these were dwarfs; others grew well enough, but were undesirable in other ways. Thus from a total of 4079 seedlings 2103 were unsuited for commercial use. Should not all seedlings be thus culled?

### OBSERVATION OF CITRUS

Recently in transplanting at a Riverside nursery citrus seedlings were divided into two groups, one of large and the other of small plants. These groups then were planted separately. When measured a year later the large group had an average height of 18 inches, while the group of small plants had an average height of 9 inches. Other groups of citrus seedlings segregated into large and small groups gave the same results. It seems quite evident therefore that this variability in size and growth is an inherited characteristic and cannot be eliminated no matter how much attention may be given to care and culture.

Hereditary differences in height of plants of the same kind has been demonstrated to be of at least two types, first, what is known as a "simple Mendelian recessive," as represented by dwarf varieties of peas when crossed with the tall varieties; second, a more complex type of Mendelian heredity such as is found in the inheritance of size in corn. The first hybrid generation between a tall and a dwarf variety of corn usually consists of a series of sizes, the extremes being about the size of the tall and dwarf parents respectively. In the second hybrid generation a continuous range of sizes again is produced which often transcends the limits of the grandparental forms originally crossed. The important point for our consideration is that the approximate parental types can be regained in a form that breeds true to type in the third or later generation by selecting the small and large second generation hybrids as the parents, for in general the small plants will produce only small plants, the large ones will produce mostly large ones, but the medium sized plants of the second generation will tend to produce a series consisting of small, medium and large plants. There is always a much larger number of the medium-sized plants.

### LESSONS FROM CORN

You may ask how this applies to the question of variability in stocks for fruit trees? *The answer is that it suggests a method for the solution of the fruit tree problem.*

The variation shown by the appearance of different types of seedlings is a segregation of the different hereditary forms from a hybrid parent. Hence the trees producing the seed used for growing fruit tree stocks are genetically in many cases complex hybrids which are kept true to variety only by a sexual propagation through buds and scions. The flowers of our fruits are showy and highly scented, and produce nectar, attracting bees and other insects, often causing cross pollination, which increases the hybrid complexness of the seedlings. In fact, many of our fruit varieties are sterile to their own pollen and set seed only when cross-pollinated. This is known to be true for some of the citrus fruits in particular. When nurserymen use seed from any such tree is it any wonder that the seeds produce plants that vary in character? It would indeed be more surprising if they did not show variations.

### CONCERTED ACTION REQUIRED

Because of the complex hereditary nature of the material the situation cannot be easily nor quickly corrected. Probably it will come about only as much care is used in securing the proper kind of seeds through the testing of the genetic qualities of self-pollinated trees which produce seed. First is, trees should be tested to reveal the amount of variability in their seed progeny, and only those that show the smallest amount of such un-

(Continued on Page 31)


# Implement Prices Down

OUR 1922 reduced prices on farm machines have just been issued and are effective immediately. They apply on practically our entire line of International Harvester grain, hay, and corn harvesting machines, plows, tillage implements, seeding machines, etc.

In determining these prices, the Company has made a careful study of market and labor conditions and has based the price reductions on the lowest possible raw material and production costs that can, under most favorable conditions, be forecast for the season of 1922.

At the new prices, a grain binder can be bought for $50 to $60 less than the price of Jan. 1st, 1921; and other reductions are in proportion.

At these prices no farmer can afford to postpone the purchase of needed machines, especially if his present equipment will not stand up under the work of another planting and harvest.

An old corn planter may crack enough kernels and miss enough hills to make its use mighty expensive. A new planter will save much of its cost the first season. The same is true of a drill. Your old binder may lose grain enough in one harvest to make a substantial payment on a new machine. The new machine will go on for many years, saving a large amount for you each year.

Economy consists not in getting along with worn-out machines *but in farming with efficient machines.*

You will of course continue with that part of your present equipment which is in good order and satisfactory. But it is good judgment now as always to abandon those machines which are really worn-out. Where repairs have been made again and again, beyond the point of serviceability, waste and loss are pretty sure to follow. Present prices will enable you to replace the old with efficient, modern machines. As Mr. J. R. Howard, President of the American Farm Bureau Federation, has said, "The farmer who needs additional machinery and equipment pays for it whether he buys it or not."

*If you are at present interested in learning some of the new prices, or in looking over any individual machine, the International Dealer in your vicinity is at your service.*

**INTERNATIONAL HARVESTER COMPANY**
**OF AMERICA**
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**CHICAGO** **U S A**

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***$2.00 for 2 Years.***

(RENEWALS SAME AS NEW SUBSCRIPTIONS

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**1111 So. Broadway, Los Angeles, Calif.**

# Vigilance

THE VALUE TO THE PUBLIC of the Bell System service is based on the reliability, promptness and accuracy of that service.

As quality of service depends upon the economic operation of all telephone activities, vigilance begins where work begins. Science and engineering skill enter into the selection of all raw materials; and into the adapting and combining of these materials to the end that the finished product may be most efficient in operation and endurance, and produced at the least cost.

A series of progressive tests are made at every step during the transformation of these materials into telephone plant and equipment. And when all these complicated devices, with their tens of thousands of delicately constructed parts, are set in operation they are still subjected to continuous, exhaustive tests.

As the best of materials and the most complete machinery is of little value without correct operation, the same ceaseless vigilance is given to the character of service rendered in providing telephone communication for the public.

Such constant vigilance in regard to every detail of telephone activity was instrumental in upholding standards during the trials of reconstruction. And this same vigilance has had much to do with returning the telephone to the high standard of service it is now offering the public.

BELL SYSTEM

AMERICAN TELEPHONE AND TELEGRAPH COMPANY
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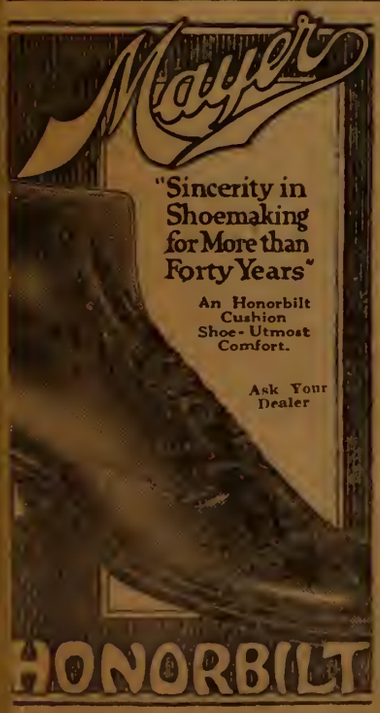
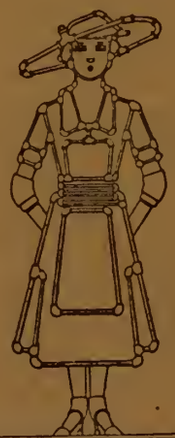
*One Policy, One System, Universal Service, and all directed toward Better Service*



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229 Howard St. San Francisco


# YOUR GARDEN of FLOWERS

*by Helen Temple*

## House Plants (Continued)
## Cinerarias

THE Cineraria originated in South Africa, where it grows like our common weeds, seeking shelter under larger tropical plants. The leaves and blossoms are wonderfully colored. The flowers vary from vivid shades of pink, to red, purple and blue, and from white through varying shades of pink to vivid pink and rose. The sky-blue is very striking, being unusually clear. The varieties usually are sold by the color. It is best to buy seed of the best hybrids from reliable nurserymen.

Helen Temple

PROPAGATION SOIL, LOCATION

Cinerarias usually are propagated from seed. Sow in shallow cigar boxes or small seed flats, treating the same as other small seeds. The seed germinates in about a week under ordinary conditions. Sow in August and raise the plants through the cool part of the year, as the cineraria will not thrive in warm weather. In October or November the little plants should be shifted to five or six-inch pots. Do not allow them to become crowded. As they are rapid growers under ordinary conditions and care, larger pots should be provided as soon as they show signs of filling the pot with new growth. They may be propagated by cuttings, but deteriorate in value after two or three repetitions, thus becoming third or fourth class plants. Start cuttings in warm sand in the greenhouse or cold frame.

Cinerarias require a cool, sheltered situation. A greenhouse or curtained window, where there are no draughts, furnish ideal situations. If they are planted out of doors, select a position where they will be sheltered from the hot sun or wind. It is not advisable, however, to plant the cineraria outdoors in the interior or windy coast regions. In the semi-tropical and mild coast regions they make excellent borders when given protection. Where they are to be grown out doors, transplant in March.

The soil should be rich and friable, preferably leaf mold and sand or sandy loam. Provide good drainage. Keep the soil moist but not wet. Sprinkle the foliage occasionally.

CINERARIA ENEMIES

Aphis sometimes attacks cinerarias, killing the plants in a very short time. Sprinkle the plant and soil with tobacco dust, or dip the entire plant in a weak soap or tobacco solution.

## Gloxinias

GLOXINIAS are general favorites. As is the case with most of our tropical plants, the gloxinia is very rich in coloring and must be grown in a moist, warm situation.

PROPAGATION, SOIL, LOCATION

Propagation is accomplished by the use of corms, or bulbs, and leaf cuttings. Sow the corms in seed boxes covered with glass in February. A warm, moist situation is necessary to cause germination, which should occur within two weeks. The following method has proved very successful: In a large box, partially filled with manure, well watered, place the seed boxes or pots, covering the box with a white washed window glass. The heat of the manure thus is confined within the box, providing ample heat for germination. As soon as the little plants are well established, gradually toughen them, then transplant to five or six inch pots and transfer to the greenhouse or house. The gloxinia should begin flowering in June and continue until early fall. When the flowers appear, the plant food, so necessary for a successful blooming season, may be provided by the use of liquid manure or a heavy mulch of old well-rotted horse manure and sand. Water, passing through this will carry the necessary plant food. Do not stir the soil or sprinkle foliage and leaves after the plants begin flowering.

For the propagating soil, use one-quarter leaf mold and three-quarters clean sand, over a thick layer of drainage with a layer of moss over the latter. Transplant to a soil of equal portions of sand, loam and leaf mold, with a drainage similar to that provided for the seedlings.

Although it is customary to start new corms each season, it is not necessary. After the blooming season is over, withhold water until spring. Set pots away in a dry, cool place. In the spring, repot in new soil, provide plant food and keep moist. They will bloom again in a short time. To start plants from leaf cuttings, follow the directions given for leaf cuttings from begonias in last month's issue.

## The Cyclamen

ANOTHER favorite houseplant is the cyclamen, which is one of the most beautiful winter bloomers, usually blooming from December until late April or May. The flowers range in colors from pure white to deep crimson, with shadings and blendings of pink and rose. Varieties that leave nothing to be desired may be found in the seed houses and nurseries of most localities.

PROPAGATION, SOIL, LOCATION

The cyclamen is propagated from seed and corms, or bulblets. The seed should be sown not later than April; preferably in early March. Treat as other houseplant seed with the exception of temperature. An even temperature of about 50 or 55 degrees should be maintained throughout the first two months. Cyclamen seed usually germinates within three weeks. The little plants should be transplanted not later than the 15th of May, to beds 6 or 8 inches apart, or to thumb-pots. Transfer to the greenhouse or cold frame where the air is cool and fresh, though not cold and draughty. Keep the soil moist. A window box or window shelf on the north of the house is an excellent situation for indoors cyclamen.

When starting cyclamen from corms or bulbs, set in 3-inch pots, barely covering with a soil mixture of leaf mold and sand. This should be done in the early spring or fall in California, thus giving two blooming seasons. As the plants grow, shift to larger pots. After the blooming season, withhold water for two or three months, allowing the plants to rest, then repot with fresh soil and begin regular watering. As the cyclamen increases in age, it also increases the size of its bulb, and number of flowers and leaves, although exhibition blooms usually are raised on the first year plants where not more than one or two blooms are allowed to mature. Cyclamen may be planted in an outdoor border where the frosts are very light and there is a protection such as a wall, or shrubbery, and allowed to stay in the ground several years without resetting.

## What Shall We Do in November?

IN many sections of the State, the rains begin in November. Purchase a few packages of wild flower seed and sow in an out-of-the-way or unattractive corner early this month. Prepare the seed bed and scatter the seeds, raking them in with a fine toothed rake. The little seedlings will need very little attention except an occasional watering if there are no rains.

Carnations, pansies and sweet peas

[illegible] and transplant d in the mild sections of the State. Old carnation beds should be renovated. All seedlings should be transplanted early this month. Bulbs such as ranunculus, narcissus, tulips, callas, anemones, hyacinths, iris, freezias and Easter lilies should be set out in the mild interior, semi-tropical and coastal regions as far north as Mendocino county. If, however, bulbs are set out as far east as Nevada and north of Mendocino county, provide a heavy mulch of old barnyard manure. All bulbs to be left in the ground in the frost sections should be mulched.

## Questions and Answers

When shall I start rose cuttings in the mountains of Siskiyou county?
MRS. H. J. B., Oak Bar, Cal.

THEORETICALLY, roses are started at any time in California, but the mountain climate of Siskiyou county practically is "eastern" during fall and winter. It is advisable to start rose cuttings out of doors in Northern California in early spring.

I HAVE come in contact with poison oak twice. I should like to know it better, thus avoiding poisoning at another time. Is there a simple remedy such as a counteracting wild herb?—Mrs. M. M. L., Ojai, Calif.

Poison oak is a pretty shrub growing from three to fifteen feet high. Leaves are one to four inches long, glossy, turning to shades of scarlet and purple-bronze in summer. Flowers are small, greenish white, blooming in spring. Shrub is diverse in habit, sometimes growing erect, again acting as a climber. California Holly leaves boiled and used as a wash, or soap root bulbs pounded into a paste and used as a salve are two of the numerous counteracting wild herbs used for oak poisoning by native Californians.

# Poultry Lore in Season

## By Bill Brahma

THIS is the month when every poultryman, big or little, wonders why he didn't hatch and raise more pullets. For now he is getting good prices for what eggs he has to sell. He vows it won't happen again; but then he said the same thing last November! And when spring came around, he didn't think it was worth while to increase his allotment of future layers.

No matter how few chickens the rancher may hatch out, he should have an incubator. Hens should not be allowed to take 8 or 10 weeks "off" in order to raise a lot of chicks. An incubator can do all the hatching necessary and the hens should be kept producing.

Watch out for the rainy days. More poultry ailments are developed during these periods than at all other times together. And not only that, but it is believed diseased layers hand down to chicks hatched from their eggs certain troubles developed by neglect during the wet season.

How many of your yearling hens laid eggs right up to November? You know some hens do not stop laying just as soon as they loose a few feathers, while others stop long before they begin to molt. Which kind do you try to have in your yards or on the ranch? It makes a big difference in the year's income! Observation and culling will turn the trick.

Are your chicken houses in good shape—rain and drought proof? Have you a scratch pen, where the chickens can work during rainy weather, and a few simple remedies in the medicine chest to use when necessary, without having to wait until you go to town to get them?

Are you bothered with rats or other pests? A permanent chicken house should have cement floors. Openings should be screened with one-inch mesh wire. Also it is well to have a wire netting door hung the same as a screen door to a house. If you have the portable colony houses, raise them off the ground about 12 inches. Do not keep any kind of rubbish underneath. If you take these precautions, rats, cats, weasels or skunks will not be able to do much harm.

## Standard-Bred Poultry

HERE are five reasons for keeping "standard-bred" poultry:

More uniform in size, type, and color.

More attractive in appearance and appeals more strongly to purchasers of stock and eggs.

Offers a greater combination of practical and useful qualities suitable to the needs of the farmer and poultry keeper.

The products of standard-bred fowls are more uniform in quality, are in greater demand, and bring better prices.

Standard-bred poultry means greater success and better profits.

## The Farm Poultry Flock

ALONG with other institutions of rural life, the farm poultry flock has undergone important changes. Most of us remember the nondescript lot of hens which foraged at will about the farm, stealing nests and falling victims to hawks, foxes and disease. Most of us, too, have engaged in the childhood pastime of hunting eggs in the mangers, lofts and fence corners.

But now on many progressive general ranches, the poultry flock is considered one of the best assets, receiving equal attention with the other departments of the farm.

Following is an outline of the methods pursued by the owner of a diversified stock and fruit ranch, who converted his poultry flock from a liability to an asset. First he disposed of all his scrub chickens and purchased a very small flock of well-bred birds, ensuring that the same method should be followed as in the raising of pure bred cattle or hogs.

The selection of a breed was made with a view to meeting farm conditions rather than emulating the commercial poultryman. The American breeds are considered better adapted to farm requirements than the lighter breeds such as Leghorns or Cochins, or even heavy types such as the Brahmas. Although he considered Rhode Island Reds, White or Partridge Wyandottes, Barred Rocks and Buff Orpingtons, he finally chose White Wyandottes. These breeds considered ideal for a small farm flock, which in this case had to be yarded in a comparatively small space. On the other hand, it may be advisable to choose a dark breed for the country districts. White-feathered birds quickly attract the attention of hawks and predatory animals, while the dark feathered kinds blend with the color of the fields and foliage. Farm poultry raisers thus are taking a hint from the camouflage experts of the world war.

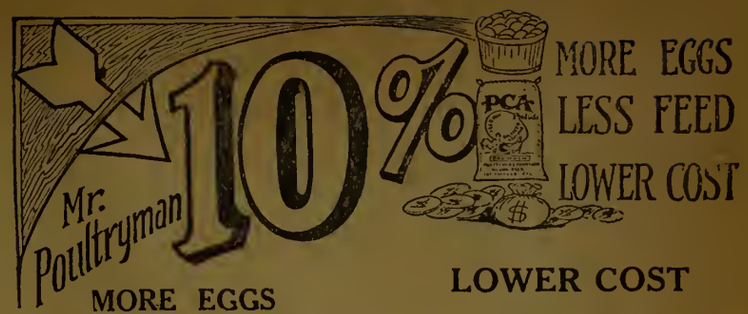
The old haphazard method of feeding gave way to a systematic plan involving the use of mixed grain for a dry mash, with a feed of crumbly wet mash in the morning. A day on open range in an enclosed pasture especially provided for the hens, followed by another feed of mixed whole grain before roosting time seems to complete the program necessary for the maintenance of good production.

Clean, cool water in summer and slightly warm water in winter were made constantly available.

Experience has shown that even on open range not enough shell-making material usually is available. Not only grit, therefore, but also broken oyster shells were provided.

It is well also to give charcoal. A lot of old limbs pruned out of fruit trees may be burned for this purpose.

A little outlay for breeding stock, shelter and fences may place the farm flock on a profitable basis, the returns, of course, depending upon the care and attention given the birds.—Bill Brahma


MORE EGGS

PCA DRY MASH should be kept before the hens at all times. Numerous letters show that poultrymen can increase their egg yield 10 per cent by feeding one-half ounce dampened PCA moult mash per hen each day. Many feeders of PCA made more money with their hens during the months of July and August than any month last spring.

LESS FEED

Users of PCA advise that after making accurate tests they find PCA Dry Mash will produce more eggs on less feed. One customer saved over 800 lbs. mash in less than three months, feeding 300 hens on PCA products.

LOWER COST

Less feed consumed with high egg production means lower cost per dozen eggs. Some poultrymen concede that PCA products are of the best quality, but they have been told that the price is too high. The fact is, PCA mashes have declined with the feed markets.

They are still made of pure grains, carefully ground and blended with other materials, into a perfectly balanced ration.

Poultrymen who know grain values will tell you that despite its excellent quality PCA prices are no higher than those asked for any good mash.

Every dealer is authorized to refund your money if PCA feeds do not please you. Send today for name of your nearest dealer and our poultry literature.

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## Conservation of Soil on Rough Land

HAVING had farming experience in many States I have seen land literally washed away and abandoned, as ditch after ditch had been torn through the soil, all caused by careless farming. Some farmers think the rows must be straight; then when the rains come away goes their soil.

It is well to cultivate according to the nature of the soil rather than to keep the rows absolutely straight. Of course, this looks better, but sometimes it is expensive in the long run. If your land is sloping, use a hillside plow. Commence at the bottom and plow from one end to the other. Then turn the plowshare and go back along the same row. This method throws the furrows all downward and in time levels the land.

HOW TO MAKE A LEVEL

A rough level aids in efficient cultivation of uneven fields. This may be made as follows. From a tripod five or six feet high suspend a piece four inches wide and three inches long. Then on the bottom of this swinging piece fasten a straightedge, three inches by three feet, making it a square, at right angles to the swinging piece.

Now, by suspending this "T" from the tripod, one can sight in any direction along the top, placing stakes or rocks as markers and thus securing a level to follow in plowing. Unless your field is absolutely level, the furrows and the "lands" will be crooked; should be crooked, in fact. And if there are "draws" or round hills, the rows must be laid out according to the land, for crops will grow on crooked land as well as straight.

It may be well on very steep hills to terrace the land, and the steeper the land the narrower the terraces. Even a mountainside which cannot be plowed may be terraced with grubbing hoe and spade and set out to vineyards and orchards. I have made terraces only five or six feet in width.

DRAINAGE OF TERRACES

A small ditch may be left on the upper side of the terrace and can be sloped gently to carry the excess water to each side, where a cement ditch may be constructed to control the water.

In terracing steep slopes, it is well to lay stones on the lower side of the terrace. If it is difficult to take in all the land, then make the terraces as far apart as you want your orchard rows. Make each terrace, or at least every other one, wide enough to carry a wagon for hauling off produce.

If more farmers would abandon their ideas about straight rows and would work with nature instead of against her, less valuable land would be lost through erosion.—Wm. Hett, Valley Center, Cal. (H).

## Home Made Feeder

ON almost every farm there are a number of empty 5-gallon oil cans. These can be used for self-feeders, each of which will accommodate large numbers of poultry.

First, remove top. Then cut out pieces one inch wide on each side at

bottom, as shown in diagram.

Finally, set tin in a worn-out baking pan or a wooden box, fastening in place with solder or nails, as the case may be.

The feeder may be used for mash, grain, oyster shell or grit.—C. F. Elworthy.

## More Cash Prizes

WOULD you like to earn $25 just for writing a few words on a blank form, which the Editor of ORCHARD and FARM will mail upon request? Hardly seems possible, but that's just the opportunity we are offering our subscribers for a few weeks only. Be sure to read the details of this proposition on page 32 of this number.

By the way, have you ever thought how unusual it is to subscribe to a superior magazine like ORCHARD and FARM for only one dollar a year and then find that you are offered constantly opportunities to win attractive prizes, worth many times the subscription price? That is just what ORCHARD and FARM is doing for its subscribers almost every month. And we are planning more contests for the coming year, in which every paid-in-advance subscriber will be allowed to participate. Don't fail to send in your renewal order. (A number of attractive magazine clubbing offers are included in this number.)

And don't forget to read the particulars of the prize contest on page 32. Do it NOW!

## In the Letter Box

October 25, 1921.

Mr. J. C. Knollin,
Editor, Orchard and Farm,
Los Angeles, California.

Dear Sir:

"One dollar down; one dollar a week."

"One dollar at six per cent will—"

"At fifty cents on the dollar."

You have heard these and many similar statements all your life, and each time you have been interested, because money buys the necessities and the luxuries of life.

Most interesting is the third "At fifty cents on the dollar,' because to make one dollar do the work of two, is to get twice as much out of your work (represented by money), as you could yesterday.

As I know that you are interested in making your dollar do the work of two, I suppose that you will be anxious to have your friends make a like saving, therefore I am taking this opportunity of telling you how your subscribers may for a very limited time, make one dollar do the work of two.

They can buy one of the best women's magazines with your splendid publication at the price of Orchard and Farm alone. The periodical to which I refer is the PICTORIAL REVIEW, selling at $2.50 per year, and it will be sent for six months with the regular dollar subscription to Orchard and Farm. Think of it!

Your subscribers may extend their subscription term without losing one valuable issue and have their subscription to PICTORIAL REVIEW begin immediately. If they wish they may have their ORCHARD and FARM go to one address and their PICTORIAL REVIEW mailed to another.

I am sure that your many friends would appreciate it if you would publish this letter.

Yours truly,
THE MAGAZINE MAN.

[Editor's Note—This is indeed interesting. Why not "take him up on it"? Just send your order with check, dollar bill or money order, to ORCHARD and FARM, 1111 South Broadway, Los Angeles.]

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# Easy Now to Get Rid of Lice and Mites

**Startling New Discovery Eliminates These Pests Without Dusting, Spraying or Dipping.**

Any poultry raiser can easily and quickly clean out Lice and Mites by using a new Remedy recently discovered by a Kansas City Chemist and called Imperial Lice and Mite Remedy.

All that is necessary is to occasionally put a few drops of this amazing remedy in the fowls drinking water. It renders them immune from the attack of all blood-sucking parasites, as these pests positively will not stay on a fowl taking this remedy.

It also acts as a splendid Tonic and Blood Purifier, as well as increasing egg production and growth, for with these pests eliminated, hens lay better and young stock grows faster. It is positively guaranteed not to affect the meat or eggs.

The manufacturers of this wonderful remedy are anxious to get it quickly introduced among poultry raisers everywhere, and make this Special Introductory Offer. Send no money, just your name and address to the Imperial Laboratories, Room 723, 2110 Grand Ave., Kansas City, Mo., and they will send you a regular full sized $1.00 bottle and will also send you free a big full sized (double strength) $1.00 package of Imperial Egg Tonic, the guaranteed egg producer. Pay the postman only $1.00 and a few cents postage when both packages are delivered. If, after 30 days' trial you are not satisfied with results just say so and your money will be cheerfully refunded.

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Ef I wuz good as I could be,
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Can't any boy be as good as her!
—James Whitcomb Riley.

### Cash Prizes for Stories

CAN you write a little fiction story of not more than 350 words, suitable for our Christmas number? It should be strictly a Christmas story and should have lots of "action." For the three best stories of this kind received by the Editor not later than December 5th, we shall send crisp, new dollar bills—one dollar bill to each fortunate winner. No boy or girl more than 14 years old may take part, and all must be subscribers or must belong to a family some member of which is a paid-in-advance subscriber. Be sure to state your age. Now get busy, boys and girls, and earn some extra Christmas money! Mail your stories to the Editor of ORCHARD and FARM, 1111 South Broadway, Los Angeles.

### The Laughing Thrush

THERE are about half a dozen members of the family of laughing thrushes. They are rather peculiar appearing birds, the wings being very small while the feet and legs are well developed. They are fond of company and usually are found in flocks of six to twelve. Their stout bills and strong feet enable them to turn over the leaves and grass and secure their food.

When something alarms them, they all join in a noisy chatter that sounds like laughter, which has given them the name of "Laughing Thrush."

The nest they build is cup shaped and is made of grass and lined with soft feathers, and usually is to be found in low bushes. The eggs number four or five and are a pale greenish blue in color, spotted at the larger end with reddish brown.—Bernice Carlson, Madera, Cal.

*Is She a Snake-Charmer?*

*What is this queer thing the little girl has over her shoulders? At first glance one might think it was a serpent or a brass horn, and even at that one would not be entirely wrong, for it happens to be a "Brass Horn Squash." Alice Manchester grew this squash in her yard and showed it at the local fair and while without question Alice's brass horn squash would be extremely discordant in a band, no doubt it will make many savory dishes. Have any of the ORCHARD and FARM boys and girls ever raised large, odd-shaped or "freak" vegetables, fruits or other farm products? If so, we would like to publish pictures of them. Send them along.*

### Rainy Day Game

VARIOUS tricks can be played by means of the electricity in paper. Ordinary sealing wax, rubbed briskly on a coatsleeve until it is warm, will attract bits of tissue paper, or any other soft paper. A variation of jackstraws can be played by means of this trick. Tiny scraps of tissue paper, or any very thin paper, each numbered, are piled in the center of the table. By means of a piece of sealing wax each player should try to draw out the greatest number in the shortest time.

The pieces of paper should be about a quarter of an inch wide by an inch long and numbered up to twenty. The object is to remove them from the center pile and put in piles before the players without touching with the fingers. It will be harder to shake them off the sealing wax than to make them stick to it. An effort should be made to secure those pieces of paper which have the largest numbers on them as a few of these count more than many of the others.

### A Battleship

HAVE you ever built a big "battleship"—not to sail on the water, but just for the fun of it? "Keith" built one this summer. He started with a heavy 2x6 plank, which he sawed to a point for the bow, and on which he built up turrets, funnels, cabins and decks. Then he mounted "guns" of various sizes, made with spools and blocks whittled to the proper shape. Flags were hung at the mastheads and a "rail," made of nails and wire, was placed around the main deck. Keith is an ingenious boy, but he's only eleven. Now he is at work upon a "regular boat," to be hollowed out, which he plans to sail on the water. But certainly he could not have more fun making it than he did in constructing the dry-land battleship on which he worked so many hours. It is a very ferocious looking man-o'-war!

**DIDN'T COME OUT EVEN**

I had five candies, Mother said,
"Divide them, dear, with sister."
First I took one, then gave her one,
But the last time 'round I missed her.


# -just dip in!

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*Poultry Bargains* — Ducks, turkeys, geese, rabbits and pigeons all are offered through ORCHARD and FARM'S "Farmers' Classified Market Place." See pages 30 and 31.

# HELPFUL HINTS for THE HOUSEWIFE

Edited by Isabel Sinclair

The highest of all holidays are those
Kept by ourselves in silence and apart;
The secret anniversaries of the heart,
When the full river of feeling overflows;
The happy days unclouded to their close,
The sudden joys that out of darkness start
As flames from ashes, swift desires that dart
Like swallows singing down each wind that blows! —Longfellow.

DEAR FRIENDS.

There are kitchens—and kitchens; and each reflects the individuality of the woman who is mistress there. I have been in old-fashioned kitchens where flowers bloomed in the windows and soft-toned rag rugs covered the floor. They were shiningly picturesque and comfortable, but the kitchens of the modern women of today are models of efficiency in their equipment, size, and labor-saving devices, without any sacrifice of comfort and attractiveness.

A kitchen conveniently planned, and equipped with good lighting and ventilation not only saves time and labor for the housekeeper, but also converts her workroom into an attractive and enjoyable place.

True, the remodeling of an old kitchen sometimes is a problem, but refinishing of the walls, woodwork and floor attractively, or adjusting the table and sink to a comfortable working height will do much toward "rejuvenating" this much-lived-in room.

One housewife had her kitchen woodwork painted a delicate pearl grey with the walls a sunny ivory. Yellow and white checked gingham curtains at the windows and a linoleum on the floor in neutral shades of greys and tans made her kitchen a delightfully bright and restful room. In another attractive kitchen the walls were papered with pearl-grey oilcloth paper (this color is especially good since it does not show soil or smoke) and the woodwork painted a shade which verged on salmon, but subdued. This tended to brighten up the kitchen in a most cheerful manner. When asked how this particular shade of paint was secured, the owner stated she had experimented and mixed paint until the desired shade was obtained. Another attractive kitchen was finished entirely in French grey enamel, with walls, ceilings and woodwork alike, and grey "tile" linoleum for the floor.

It is best to use the kitchen only as a place for preparing food. If the laundry, wash room, and general storage rooms are located nearby (but separate) the arrangement is more sanitary. A dining alcove (or breakfast nook) will save the housekeeper many steps.

The sink, stove, work table and other important parts of the kitchen should be well lighted and of the proper height. The following measurements for working surfaces may be used as a guide: A woman 5 feet tall requires a working surface 31¾ inches high; 5 feet 5 inches, 33½ inches high; 5 feet 7 inches, 35 inches high. One housewife through experimenting, found her working surface about six inches below her elbows when standing with her arms held straight in front of her.

An abundance of well-planned cupboard and shelf room provides for the orderly storage of utensils and supplies. Grouping of articles which are used together saves time as well as steps, and running water both hot and cold may be placed first perhaps among all conveniences.

All in all, the kitchen as a whole, should meet the standards of a convenient, well-arranged workshop — the workshop from which emanates the delicious meals upon which pleasant home life is contingent.

Sincerely,

Isabel Sinclair

*The Home is the Hub of the Universe*

## Cranberries in the Thanksgiving Menu

ONE naturally thinks of cranberries in connection with the Thanksgiving dinner, and truly no Thanksgiving dinner would be complete without this delicious accompaniment, whether it takes the form of the ever-popular sauce or is developed from a more elaborate recipe and takes its place in the form of a salad or a dessert.

Cranberries should be cooked in earthen, porcelain-lined or enameled vessels only, placing the fruit in a glass or earthenware dish after it is cooked. Cranberries are inexpensive as well as most delicious, and there is no waste of time in peeling or coring in their preparation for use. They are stimulating to the appetite and aid digestion and the housekeeper would do well to use more of them in her daily menu. Following are some delicious recipes that would prove a fitting climax to the Thanksgiving dinner:

### CRANBERRY SAUCE

1 qt. cranberries — 2 cups sugar
2 cups boiling water

Boil sugar and water together for five minutes, skim; add berries and cook without stirring until transparent. Five minutes' cooking over a hot fire usually is sufficient time to make sauce clear. If a strained sauce is preferred, cook cranberries and water, then press through a strainer, keeping back the skins; add sugar and finish the cooking as suggested.

### CRANBERRY MERINGUE PIE

1½ cups sugar — 2 eggs
2 cups cranberries — 1 tablespoon butter
½ cup cold water — ½ teaspoon vanilla
1 tablespoon flour — extract
2 tablespoons powdered sugar

Cook sugar and water to a syrup, add cranberries. Cook until they pop. Cool a little. Mix smoothly in a bowl the flour and yolks of eggs; add three tablespoons of the juice of cooked cranberries, then add to the berries and simmer for three minutes. Stir in butter and vanilla and set aside to cool. Turn filling into deep pie crust, cover with meringue made from stiffly beaten whites of eggs and powdered sugar. Place in cool oven to set and slightly brown the meringue.

### CRANBERRY ICE

1 qt. cranberries — 1 pound sugar
1 pint water — Juice two lemons

Cook cranberries with the water until the berries are tender; strain; add the sugar and cook until thoroughly dissolved. Cool; stir in the strained lemon juice and freeze to the consistency of water ice. Serve as a dessert or in sherbet glasses as an accompaniment to roast turkey or any hot or cold meats.

### MOCK CHERRY PIE

1 cup cranberries — ½ cup water
½ cup raisins — 1 tablespoon flour
1 cup sugar — pinch of salt

Chop the cranberries coarsely; add the raisins, seeded, and cut in pieces. Add also the sugar, water, flour and salt. Line a deep pie plate with pastry, turn the filling into this and cover with an upper crust. Bake in moderate oven about half an hour. Almond or vanilla flavoring may be added.

### STEAMED CRANBERRY PUDDING

1 cup flour — 2-3 cup finely chopped suet
1½ teaspoons baking powder — 2-3 cup coarsely chopped cranberries
½ teaspoon salt
½ cup bread crumbs — 1 egg

Milk or water to make a light dough. Mix ingredients in the order given. Turn into a well greased bowl or mold. Cover with waxed paper and steam two hours, never allowing the water to come more than two-thirds of the way up the sides of the mold. Turn out and serve with hard sauce or any good sweet sauce.

## The Ship of Dreams

"WHEN my ship comes in"—enchanting phrase,
For it speaks of love, and better days,—
Of Wealth and joy and friends and power—
Mysterious, haunting, witching hour—
"When my ship comes in."

"WHEN my ship comes in"—but, ah, dear friend,
The ship returns with what we send,
Doubled, yes trebled—and dearer, far
Than ever unearned riches are—
When the ship comes in.

"WHEN my ship comes in"—a dangerous thought
And fruitless, for the years have taught
That wishing never bent a mast,
And only work and truth prevail,
For unannounced is the welcome sail,
When the ship comes in at last. —Doris Virginia Lee.

## Miscellaneous Hints

SOOT may be removed from a rug by immediately covering the spot with salt and sweeping up with a stiff broom. The soot will be removed with the salt.

A small lump of camphor kept in the silver chest will keep the silver from tarnishing.

To soften water in which flannels are to be washed, allow two teaspoonfuls of glycerine to a tub of water.

Partly fill a small round bottle with cedar oil and fasten in an upright position in the trunk or chest in which clothes are kept. It is better than moth balls and is free from the disagreeable odor.—George Fitzgerald, Los Angeles. (H)

TO prevent scum from forming on the top of an unsealed jar of pickles, make a sack of cheese cloth, into which put a little mustard seed and place this inside of the jar.—Mrs. M. C. McDaniel, Templeton, Cal. (H)

TO keep icing soft, add a pinch of baking soda to the egg whites then beat in usual manner. Pour the hot syrup over the eggs and the icing will remain soft.—George Fitzgerald, Los Angeles. (H)

## Homemade Fireless Cooker

I SECURED a wooden candy bucket from the grocer, then bought 30 cents worth of asbestos and a wire basket from which I removed the bail. I packed the bottom of the bucket with about two inches of excelsior and lined the wire basket with the asbestos, placed it in the bucket and filled in all around with excelsior, packing as tightly as possible. I purchased an asbestos mat for ten cents to fit over the wire basket. I used a piece of old grindstone heating it in the oven while bringing the things to be cooked to the boiling point. A fireless cooker pot which I had, but which can be purchased at any store, fits into the wire basket. With some left-over denim I made a circular cushion which I filled tightly with excelsior. I press this cushion down tightly into the bucket. This completes the cooker which costs less than a dollar.

I have cooked chicken, ducks, beans, oatmeal, rice, macaroni, vegetables and a "boiled dinner" in my cooker. In the winter I sponge my bread in the cooker pot, warm the grindstone and let my sponge raise there. After mixing the bread I again place it in the cooker to rise. A brick, flat iron or piece of soapstone may be used instead of the grind stone.—Mrs. A. E. Saxton, Alamo Nev. (H)

## Little Helps

Salt and vinegar makes an excellent cleaner for copper.

Have you ever used a dish drainer? It has been found to save half an hour per day in a family of four.

The scales can be removed from fish much easier if they are first dipped for a minute into boiling water.

A small shelf over the kitchen range for holding salt, pepper and other seasonings will be found a great convenience while cooking.

Determine the correct height of the working surfaces of your sink, work table and ironing board. It will save much back ache and fatigue.

When buying a garment containing a drawing string, stitch the string in the middle of the beading, leaving an equal distance from either end to draw it up. Thus it cannot be pulled out in the wash or otherwise.


## Large Sums of Money in Old Kettles

Don't throw away any more household or cooking utensils on account of leaks in them, as a South Dakota man has discovered a harmless powder mixture which, after being mixed into putty form, becomes hard as stone and successfully mends leaks in Agate, graniteware, Aluminum, Copper, Brass, Iron, Tinware and Plumbing. Even a child can mix and apply it, as it requires neither heat, acid, nor tools and will not melt.

In order to prove its great value to every reader of Orchard and Farm he offers, if you will write within one week from date you receive this paper to mail you one large regular full-size 50-cent package of this Mend-a-leak powder, with full directions for mixing and using, enough to mend 30 to 40 ordinary leaks, by return mail for only 25 cents, or three packages postpaid for only 60 cents, silver or stamps, or six packages postpaid for only $1.00. If silver is sent, wrap well in paper and use strong envelope. Guaranteed as represented or money refunded. Address all orders to Allen Watson, B233, Farmingdale, S. Dak.

This should be a big money getter for live agents.

Note—Compare these patterns, as to price and style, with those obtainable elsewhere!

# PRETTY COSTUMES

## Selected by Isabel Sinclair

*These costumes are simple and can be made readily by the home dressmaker from the instructions provided. Send 15 cents in silver or stamps for each pattern desired. Address Pattern Department, Orchard and Farm, 1111 South Broadway, Los Angeles. Give full name and address.*

**3468—A Popular Apron Dress**

Cut in 4 sizes: Small, 32-34; medium, 36-38, large, 40-42, and extra large, 44-46 inches, bust measure. The width of the skirt at lower edge is 2 yards. A medium size will require 6 yards of 36-inch material. Price 15 cents.

**3753—Junior's Dress**

Cut in 3 sizes: 12, 14 and 16 years. A 14-year size requires 2¾ yards of 36-inch material for the dress and 2¼ yards of 32-inch material for the guimpe. Price 15 cents.

**3747—Lady's Wrap**

Cut in 4 sizes: Small, 34-36; medium, 38-40, large, 42-44, extra large, 46-48 inches bust measure. A 38-inch size will require 3½ yards of 54-inch material without nap. Price 15 cents.

**3779—Lady's Gown**

Cut in 7 sizes. 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38-inch size will require 5¼ yards of 40-inch material. Price 15 cents.

**3774—Girl's Dress**

Cut in 4 sizes: 8, 10, 12 and 14 years. A 10-year size requires 2½ yards of 44 inch [illegible] and [illegible] yards for the [illegible] and collar. Of one material 5 [illegible] of 27-inch material will be required. Price 15 cents.

**3591—Lady's Dress**

Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38 inch size will require [illegible] yards of 44-inch material. The [illegible] of the skirt at the foot is 2 yards. Price 15 cents.

**[illegible]—Boy's Suit**

[illegible] 4, 6 and 8 years. A [illegible] yards of 27-inch [illegible]

**3282—Set of Smart Neck Wear**

Cut in 3 sizes: Small, medium and large. For a medium size No. 1 will require ¾ yard for the collar and ½ yard for the cuffs of 24-inch material. No. 2 will require 1 yard, and No. 3 ¾ yard. Price 15 cents.

**3783—Girl's Dress**

Cut in 5 sizes: 2, 4, 6, 8 and 10 years. A 6-year size requires 3 yards of 36-inch material. Price 15 cents.

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Send 15 cents in silver or stamps for our up-to-date fall and winter 1921-1922 catalog, containing over 500 designs of ladies' misses' and children's patterns, a concise and comprehensive article on dressmaking; also "Some Points for the Needle." Illustrating 30 of the various simple stitches. All valuable hints to the home dressmaker.

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Be sure to give number and size. Send orders for patterns to ORCHARD and FARM, 1111 South Broadway, Los Angeles. Be sure to sign your full name and address below.

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"I prefer articles which tell me all about the home," said the young wife.

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CORY THORNLESS Blackberry for extra good, strong plants that will have berries next summer if planted this fall. Write to Wm. Mortenson, Lodi, Cal.

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$35 to $600

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AUTOMOBILE Owners, Garagemen, Mechanics, Repairmen, send for free copy of this month's issue. It contains helpful, instructive information on overhauling, ignition troubles, wiring, carburetors, storage batteries, etc. Over 110 pages, illustrated. Send for free copy today. Automobile Digest, 606 Butler Bldg., Cincinnati, Ohio.

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Flat white, $2.25 a gallon. Weatherproof roof coating, 55c gallon. Best house paint, $2.50 gallon. Outside white, $3 gallon. Linseed oil, white lead at wholesale. Our products are the best. Our prices are the lowest. SEE US FIRST. WE SHIP EVERYWHERE. UNITED WHOLESALE PAINT CO., 630 South Main St., Los Angeles, Cal. 66070.

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ROOFING PAPER, 1sts, complete, 1-ply, $1.25; 2-ply, $1.60; 3-ply, $2.20.
Lead and oil paint .....$2.00
Roof paint, special ..... 40c
Prompt deliveries of mail orders.
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## LIVESTOCK—MILCH GOATS

FOR SALE, MILK GOATS—The largest, most select herd of heavy milkers in California. Pure Swiss and grade Toggenburgs, reg. Weaned kids, ready for shipment, 4 beautiful pure bred bucks. We raise nothing but the best. La Corona Goatery, El Monte, Calif.

FOR SALE—Registered grade Toggenburg milk goats and kids. For service, El Rey de la Estrella, No. 7406. Pure bred natnrally hornless Toggenburg buck. Service fee $5. Ed Thomas, Rodeo, Cal.

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SPECIAL—Weanlings sired by a son of King Orion Jr., who was second prize winner at the National Swine Show, 1919, and grand champion San Francisco Land Show, 1919. H. E. BOUDIER, Napa.

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AMBITIOUS WRITERS, send today for free copy America's leading magazine for writers of Photoplays, Stories, Poems, Songs. Instructive, helpful. Writers' Digest, 698 Butler Bldg., Cincinnati.

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LATEST NOVELTIES—Useful sample 25c, circulars sent free. WRITE TO HAYES, B-210, Sausalito, California.

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### THREE YEARS TEST

of the Queen Incubator in one leading State University against all other makes showed the Queen to hatch 9% more chix than nearest competitor, each chick weighing two-tenths of an ounce more. This record should guide you in buying. Write us for prices. Queen Colony Stoves, Reliable Blue Flame Brooders, Electric Brooders, all breeds high grade pure bred baby chix. Order now for spring delivery. Pullets.
C. E. HILL CO.
418 11th st Oakland, Calif.

BABY CHICKS—Booking now for 1922 delivery. Order early. White Leghorns, R. I. Reds, Brown Leghorns, Barred Rocks. Write for circular. Stubbe Poultry Ranch & Hatchery, P. O. Box 67-C, Palo Alto, Cal.

S. C. WHITE LEGHORN chicks and pullets. 100 or 1000 lots from trapnested stock. Write for hatching dates. 1922 delivery. FORSTER BROS., P. O. Box 198-A, Sunnyvale, California.

"EASTMAN'S Bred-to-Lay" Barred Rocks. FALL CHICKS, MARCH-APRIL PULLETS. Fairmead Poultry Farm, Fairmead, Calif.

## POULTRY

THE Schlotthauer Single Comb White Leghorns have been bred since 1908 and all breeding stock has been carefully hoganized to insure heavy laying and strong, hardy chicks. Safe delivery and full count guaranteed. For more information write for free booklet. White Plumage Poultry Farm & Hatchery, Exeter, Cal.

### DAY-OLD PULLETS

Here is your chance to get day-old White Leghorn and Ancona chicks, guaranteed at least 90 per cent pullets. We are taking orders fast for October and November delivery. We also have R. I. Red and Barred Rock chicks, but do not separate the sexes. All chicks are from strictly thoroughbred, laying stock and are hatched right and shipped by special delivery parcel post. Send for prices and get your orders in at once.

**Orange County Hatchery**
Santa Ana, Calif.

ALL VARIETIES of baby chicks hatching each Monday and Wednesday. Ducklings each week. Barred Rocks, Rhode Island Red and White Leghorn pullets, prices start at $1.00 each. Send your order now for fall chicks. Price list now ready. Complete line of poultry supplies and remedies. All kinds of puppies, kittens, birds and pet stock.

**FANCIERS EXCHANGE**
640 So. Main St Los Angeles, Cal

1922 · MISSION HATCHERY 192. Early chicks are the ones that pay first and best. Our special letter will tell you why we think so. Write for it, also particulars about our R. I. Reds, Barred and White Rocks, White, Buff and Brown Leghorns. Large or small lots. Our matings are pure bred; heavy laying strains, and with quality high, service good, and prices reasonable. We think we can please you.
MISSION HATCHERY, Box 7, Campbell, Cal

S. C. WHITE Leghorn baby chicks. From trapnested Tancred and Tom Barron roosters. Their mothers have an egg record of close to 300 per year. We guarantee safe arrival and full count. 15 years shippers of baby chicks. Literature and prices on request. Booking orders NOW for FALL of 1921 and SPRING of 1922. HICKS ELECTRIC JUBILEE HATCHERY, Petaluma, Cal. Route 2, Box 22.

PETALUMA HATCHERY, established 1902 by L. W. Clark. Chicks every Monday and Thursday. White and Brown Leghorns from heavy laying free range stock. We positively guarantee safe arrival and full count of good, strong chicks and no questions asked. Send for prices and terms. L. W. CLARK, Petaluma, Cal., Box 155.

BARRED PLYMOUTH ROCKS—"Nothing better in poultry." Wonderful layers. Hens and pullets for sale; also choice cockerels that will improve your flock. Now booking orders. Have made a specialty of Barred Rocks for over twenty years. "That's why" our birds win at all leading shows. Catalog free. Vodden's Rockery, Los Gatos, Cal.

WHITE LEGHORN BABY CHICKS from heaviest laying (Hoganized) stock. Safe delivery live, vigorous chicks guaranteed. No money in advance; pay on delivery. Prices on request. Established 1898.
MUST HATCH INCUBATOR CO.
432 Seventh St. Petaluma, Calif

### DAY-OLD PULLETS

Guaranteed S. C. White Leghorn day old pullets are a howling big success. Testimonials and references on request. Established 1912. Eureka Hatchery, 628 D St., Petaluma, Cal. Jas. K. Hirst, Prop.

BABY CHICKS—Single Comb White Leghorns, Black Minorcas, from heaviest laying (Hoganized) stock. Safe arrival guaranteed. Also Mammoth Pekin ducklings. Booking orders now for 1922. MORGAN'S HATCHERY, 5 Wolfe St., San Francisco, Cal.

WARD'S SINGLE COMB REDS Win at the 1921 State Fair, 3 firsts, 2 seconds, 2 thirds, 9 specials. Reds largest class in show. Hatching eggs, cockerels and pens. WARD'S POULTRY FARM, 39-B South Lincoln ave., San Jose, Cal.

WHITE LEGHORN Baby Chix from Petaluma's heaviest producing stock. We guarantee safe arrival. Literature on request. PIONEER HATCHERY, 418 Sixth Street, Petaluma, Calif.

WATCH US GROW. Fall chicks, Rhode Island Reds, B. Rocks, White and Brown Leghorns and Anconas. E. W. Ohlen, Campbell, Cal.

ANCONAS. Our sixth year. Cockerels, single birds, $3.50 and $5.00. Good color, plenty of pep. Satisfaction guaranteed. A. S. WILKINSON, Winton, Calif

## TURKEYS AND GEESE

GIANT BRONZE TURKEYS

Large turkeys can be raised at practically same cost as small ones. It is in the strain. One of our toms will give you five more pounds of meat to market in all his get the first year, besides vitality and beauty.

GOLD NUGGET STRAIN
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Won at California's two greatest shows, Gold Special Sweepstakes for best turkeys, California State Fair, 1920, against 66 of the State's best turkeys, also every 1st, 2nd and 3rd prize and Gold Special Sweepstakes at Los Angeles Livestock Show of 1920.

AN UNEQUALED RECORD

Toms and hens for sale; a few high class exhibition toms to win in any show or head any flock. Book orders early for December and January shipment, as each year we are sold out.
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MAMMOTH BRONZE TURKEYS, Gold Nugget prize strain. 2-year-old 35-pound toms, 18-pound hens. Young breeding toms, $15.00; eggs $5 setting. $35.00 100. Sure blackhead and roup cures. 30 capsules $1.00. INGLEWOOD POULTRY CO., Box 242, Inglewood, Calif.

WILD TURKEYS—30 days only, $10.00 to $50.00. Best, cheapest, most certain, indispensable producers. Cash deposit now secures stock or eggs for present or future delivery. M. A. Stutsman, 3423 Atlantic St., Los Angeles, Cal.

TURKEYS—Giant bronze stock, Champion "Gold bank Boy" and "Copper King V" strains. Bronze King Mountain Farm, Calistoga, Calif.

FOR SALE—Fine strain turkeys, wild and bronze. Blanche Dresser, Rt. C, Box 194, Tulare, Calif.

## RABBITS AND PIGEONS

REAL RABBITS
All breeds
Guaranteed stock
Raised Right
Kept Right
Prices Right
RABBIT FARM
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FOR SALE—High class gray and steel gray Flemish Giant breeding does and bucks. All ages. The big kind. Cheap. At San Fernando Fair 18 entries, 8 firsts, 4 seconds. Mike Ditzel, 936 Maple ave., Los Angeles, California.

WILL sell 25 of my pedigreed Himalayan Fur Rabbits from prize stock, $4.00 each. Mature. J. D. Hall, 1375 East 49th st., Los Angeles, Cal.

PEDIGREED FLEMISH GIANTS—No fancy prices. Mrs. T. Beeching,, 1578 W. 46th St., Los Angeles, Cal.

AMERICAN BLUES, 2 to 3 months, $5 per trio. GARNET HUTCHES, 3431 Garnet St., Los Angeles.

FOR SALE—Carneaux pigeons, real squab raisers, $2.50 to $5.00 pair. Palms Squab Ranch, R. 2, Box 237, Inglewood, Cal.

SILVERTIP Flemish Giants, pedigreed extra large, beautiful stock. Write E. W. Cokely, Rt. A, Box C, Lemoore, Cal.

## DUCKS AND GUINEAS

CALDWELL'S White Muscovy (quackless) Ducks. Win, Weigh, Lay and Pay. Week old ducklings. Hatching eggs. Free circular. Caldwell Duck Ranch, Box 274, Los Angeles.

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Have your Kodak finishing done by experts. Mail your negatives to
Winstead Photo Finishing Co., Box 116, Los Angeles
"We put the snap in snapshots."
Let us enlarge your favorite negative

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STROP DRESSING—Sharpens razors no matter how dull without honing or grinding in less than one minute's time. Send 10c to cover mailing. If satisfied after using send 25c more if not return it. Order now. THE HOME BARBER, Richmond, Cal.

## GUINEA PIGS, MICE AND RATS

GUINEA PIGS for sale—all colors—prices right. Also will buy. Write J. E. LOVE, 1014 Brooklyn Ave., Pasadena, Cal.

## HELP WANTED

BE A RAILWAY TRAFFIC INSPECTOR. $110 to $250 monthly, expenses paid after 3 months' spare time study. Splendid opportunities. Position guaranteed or money refunded. Write for free booklet G-91 Stand. Business Training Inst., Buffalo, N. Y.

## AGENTS WANTED

WANTED—SALESMEN WHO CAN SELL high grade, dependable nursery stock; exclusive territory; outfit furnished and commission advanced weekly; commission basis. Address Albany Nurseries, Inc., Albany, Ore.


# Eliminating Sluggish Fruit Trees

(Continued From Page 23)

desirable types should be used as the source of budding stock. To accomplish this desirable end may require a co-operative effort similar to that developed in California for the selection of superior buds from trees having a record for consistent high production.

### THE HYBRID PHENOMENON

The possibility of utilizing the phenomenon of hybrid vigor which results from crossing somewhat dissimilar hereditary types also must be taken into account in any scheme to produce superior stocks for fruit trees. In some little-understood manner, hybridization sometimes gives an impetus to growth and development which can be secured in no other way. The hybrid walnut produced by Burbank by crossing the California black walnut with the Eastern black walnut, which grew to the height of 80 feet in twenty years, may be taken as a typical example. Hybrid walnut seedlings of this type, known as the Royal, are being used in parts of California as stocks for the English walnut, and prove to be superior to the ordinary black walnut stock. The second generation also segregates into large, healthy, vigorous seedlings, comparable to the first generation hybrid and into smaller, slower-growing seedlings comparable to the grandparental black walnut types.

*Compare These Two Yearling Trees*

*These young trees show the extremes in growth of second-generation hybrids! In the first year the tiny tree grew only one inch above the ground, while the lower one grew six feet. Why waste time on slow-growing runts?*

### METHODS OF HANDLING CITRUS

Most of the seeds used for producing citrus stocks in California are from either sour or sweet orange. As usual, no attention has been paid to the source of these seeds, which are taken indiscriminately from almost any sweet or sour orange tree producing seed fruit. The sour orange seed is produced mostly in Florida, where it is collected from numerous trees here and there over the State, while the sweet orange seed is produced largely in California. The seeds first are drilled in beds. When about a year old they, except the smallest, are transplanted to the nursery rows.

Even at this time considerable variation in size and vigor, which cannot be ascribed to the difference in soil or climate, is noticeable. After about a year all that are of a certain size are budded. Those that are too small are left until they have reached the required size for budding. After budding they usually remain about two years before being ready to transplant to the orchard.

The budded trees at this age show considerable variation in size, although they are on roots the same age, budded with the same kind of carefully selected buds and at the same time. As they are nearly always sold according to trunk size, it is not an uncommon practice to go through the nursery and pick out all the larger trees, leaving the undersized ones to be sold when they have reached the desired size. Thus all these different types find a place in some orchard and doubtless are responsible for some of the tree variations found by Shamel through the use of individual tree records.

### FOR BEST BUDDING RESULTS

The highest efficiency of the carefully selected buds cannot be realized until the variation in the stocks has been reduced to a degree no greater than that among the buds themselves. However, there is a way to prevent these dwarf types from getting into the orchard without resorting to the breeding process which will require both time and money to establish successfully.

This method consists principally in selecting rigidly against the small, undesirable seedlings. The first selection made at the time the seedlings are removed from the bed to the nursery row should be the most comprehensive, because it is less expensive to cull at this time. A second selection should be made in the nursery row at the time of budding, removing again all dwarf forms, and a final culling when the trees are taken from the nursery to the orchard. This method should leave a very high percentage of good, vigorous trees for orchard planting. Since our orchards should last for years it would be poor policy to plant slow developing and poor growing trees. We should use only the best buds, the best stocks and the best trees to insure as best we can from the standpoint of quality and uniformity of material, uniformly productive orchards.


ARE YOU USING
GOPHER-SCENT?

The new method of killing gophers and squirrels.
Now is the time of the year to exterminate them and GOPHER-SCENT will kill them off so quick and sure that it will surprise you.
GOPHER-SCENT is a new method and a common sense, economical method of killing gophers and squirrels, fully demonstrated on this theory:
We all know that if fish is thrown in the yard it would be difficult to keep cats away. Why?
Because they like the taste and the scene attracts them. Gophers and squirrels are animals, too, and they have a taste for certain things.
GOPHER-SCENT is the one and only preparation that carries this scent and taste that gophers and squirrels like and which positively attracts and exterminates them. GOPHER-SCENT has met with instant success wherever sold.
GOPHER-SCENT is prepared in packages from 50 cents up. No mail orders filled. If your dealer doesn't handle GOPHER-SCENT notify us and we will supply him.

C. G. Woods Chemical Co.
GLENDALE, CAL.
Sold in Los Angeles by AGGELER & MUSSER SEED CO., and throughout other sections of the state by Hardware, Feed and Seed Stores.


## Dehydration of Grapes

(Continued From Page 21)

scraping the dried grapes from the trays into a hopper from which an endless conveyor carries them to the stemmer.

The stemmed grapes are carried by a second conveyor through a long, narrow steam box, amply supplied with live steam. This conveyor discharges directly into the final package, which immediately is weighed and sealed. The dehydrated grapes reabsorbed water at the rate of 3 to 4 per cent per minute, the speed of the conveyor being regulated to give the necessary exposure to the steam.

### COST OF DEHYDRATION

The cost of dipping, drying and stemming grapes at the University Farm dehydrator in 1920 was given in the table published last month—$29.89 per dry ton, $8.56 per fresh ton. If the cost of processing and packing, of superintendent's salary and of the fixed charges such as interest, taxes, depreciation and insurance were added, the total would be approximately double that given in the table. The present cost, however, would be considerably reduced, principally because of lessened labor expense.


"I Like Hogs"

—the secret of Carl G. Meiners' success.

Read why Meiners likes hogs and how he won the championship the first time he exhibited,

in the *December*

ORCHARD and FARM
ESTABLISHED 1888

# RHEUMATISM

**A Remarkable Home Treatment Given by One Who Had it**

In the year of 1893 I was attacked by Muscular and Sub-Acute Rheumatism. I suffered as only those who are thus afflicted know for over three years. I tried remedy after remedy, but such relief as I obtained was only temporary. Finally, I found a treatment that cured me completely and such a pitiful condition has never returned. I have given it to a number who were terribly afflicted, even bedridden, some of them seventy to eighty years old, and the results were the same as in my own case.

"I Had Sharp Pains Like Lightning Flashes Shooting Through My Joints."

I want every sufferer from any form of muscular and sub-acute (swelling at the joints) rheumatism to try the great value of my improved "Home Treatment" for its remarkable healing power. Don't send a cent, simply mail your name and address, and I will send it free to try. After you have used it, and it has proven itself to be that long-looked for means of getting rid of such forms of rheumatism, but understand I do not want your money you may send the price of it, One Dollar, unless you are perfectly satisfied to send it. Isn't that fair? Why suffer any longer when relief is thus offered you free? Don't delay. Write today.

Mark H. Jackson, 41H Durston Bldg., Syracuse, N. Y.

Mr. Jackson is responsible. Above statement true.



# MONTAGUE PIPE AND STEEL COMPANY

Riveted Steel Pipe
Oil and Water Tanks
Steel Flumes, Siphons, Stacks
MONTAGUE WELL CASING
Write for Prices.

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**To Introduce the CATARACT Circulating Water Pump for Ford cars and trucks.**

Positively prevents overheating, freezing and 50% of all Ford engine troubles. Makes used Fords run like new—keeps new Fords new. Doubles power, flexibility and life of any Ford car or truck. Ford owners buy eagerly. They are anxious to get one of these wonderful pumps. Sold on FREE trial money back guarantee.

**FREE Cataract Pump for Your Ford**

Cataract agents make from $75 to $150 a week. All you have to do is to put a CATARACT on YOUR Ford and accept big, profitable business day after day. No limit to the money that you can make. Write for illustrated literature and AGENTS proposition—TODAY.

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2311 Fifth St. - Milwaukee, Wis.


*"Farms for Sale"*—is but one of the many departments of ORCHARD and FARM'S "Classified Market Place." See pages 30 and 31.

# New Contest—Cash Prizes

## All Orchard and Farm Subscribers Are Invited to Enter This Prize Contest. Different, Interesting, Helpful, Practical

HERE is your opportunity to make money without any real effort. And at the same time you will help make ORCHARD and FARM more valuable to yourself and to fellow-subscribers. All we ask you to do is simply to fill out a blank form that we shall send upon request. This will require but a few moments of your time.

SYSTEM IN PLANNING WORK

The form we shall send you is to be used for outlining a plan for work by months, starting with January and ending with December, 1922. In entering the contest, therefore, you will be helping yourself, for it is a good idea at this time of year to look ahead and make plans for the future, as well as reviewing the year now closing.

But the "big idea," of course, is to secure by this means data applying to all branches of food production in California which we can publish from month to month as a guide to subscribers engaged in the same line of production.

We expect to hear from deciduous and citrus fruit growers, general farmers, livestock breeders, dairymen, poultry raisers and others. Therefore we have arranged a schedule of prizes covering the different branches of California agriculture. In addition there will be a grand prize for the best entry of any class.

NOTE RULES CAREFULLY

Only actual, paid-in-advance subscribers may take part. But any reader not a subscriber may enter by sending one dollar to cover a year's subscription. Note the attractive prizes offered. All entries must be submitted by January first. Watch your magazine for news of progress of the contest.

Use the coupon below or simply send your name and address with request for "System Contest" blanks. Do it now, before you forget. There is no obligation. All you have to do to enter the contest is to fill in the form and return it. No personal information asked. Your name will not be published if you so request.

A committee of impartial judges, to be announced later, will select those entries which they consider most valuable and checks will be mailed to the winners. Full instructions will be mailed with the blanks. WRITE TODAY! Address "System Contest Editor," Orchard and Farm, 1111 South Broadway, Los Angeles. Use coupon below.

## Generous Cash Prizes

***Easy to Win!***

IMPORTANT—Wives and families may take part if head of family is or becomes a subscriber to Orchard and Farm.

| | |
|---|---|
| For the best entry dealing with any branch of *deciduous fruit (and nut)* production | $ 15.00 |
| For the best entry dealing with *citrus* fruits | 15.00 |
| For the best entry from a *dairyman* | 15.00 |
| For the best entry from a *livestock breeder* (other than a dairyman) | 15.00 |
| For the best entry from a *poultry* raiser | 15.00 |
| For the best entry from a *general farmer* | 15.00 |
| For the best *miscellaneous* entry, covering small fruits, truck gardening, or some specialty not included above | 15.00 |
| **Total regular prizes** | **$105.00** |
| IN ADDITION, the prize winner who is adjudged to have submitted the best all-around entry of any class will be awarded an extra | $ 10.00 |
| The prize winner adjudged to have submitted the second best all-around entry of any class will be awarded an additional | 5.00 |
| Then all the remaining entries will be judged as to general merit and three (3) will be awarded $3 each | 9.00 |
| Finally, all remaining entries will be judged as to general merit and six (6) will be awarded $1 each | 6.00 |
| **Total cash prizes** | **$135.00** |

Thus it will be seen that it is possible to win $25 just for a few minutes' pleasant, profitable work. And in addition to competing for a prize, each contestant will benefit himself by reviewing the past year's work and laying plans for the coming year. There are so many prizes that many who do not win the main awards will profit. Read the instructions and write the SYSTEM CONTEST Editor today! Use coupon below.

## Nearly $200 Paid by Orchard and Farm to Subscribers Last Month

IN the October number we published the names and addresses of the fortunate winners in our recent "Helpful Suggestions Contest." These prize contests are a regular feature of the "Great Western Farm Magazine." Think what it means to pay only one dollar a year for a subscription to a superior magazine, which constantly awards cash prizes equaling from 5 to 50 times the cost of the subscription! You may have your subscription money returned many times over.

And this, in addition to the unequaled features—many of them very costly—which are included in every number.

In one subscription contest, ORCHARD and FARM paid over $1900 in prizes, ranging from $5 for fiftieth prize to $600 for first prize.

The writer personally asks every subscriber to take part in the present contest (which does not involve subscriptions, except that every contestant must be a paid-in-advance subscriber). Undoubtedly the winners will secure their money more easily than in any other contest we have conducted.

But simply from the standpoint of co-operation—helping your neighbors and fellow producers—it will be worth while to send for and fill out one of the forms. By taking part you will be exchanging experiences with other successful producers.

And you will benefit through the publication of a monthly summary of all the ideas and suggestions. Therefore, the more subscribers who take part, the more valuable will the magazine be to all.

By all means, cut out the coupon below, fill in your name and address plainly, and mail it NOW, before it slips your mind. We will do the rest.—J. C. Kneihn, Editor.

NAME .....

ADDRESS (Town or City) .....

(R. F. D. or Street Number) .....

TO SYSTEM CONTEST EDITOR: Please send blanks and instructions for competing for cash prizes offered in November number of Orchard and Farm, 1111 South Broadway, Los Angeles.


# Wipe Out Every Rat and Gopher

**Amazing New Discovery Quickly Gets Every One. Not a Poison.**

Don't be satisfied with trapping or poisoning just a few. Exterminate the whole bunch—old, young, big and little. Rats do millions of dollars' damage each year. They kill chickens, destroy grain, damage buildings, merchandise, and are filthy disease carriers.

A wonderful new scientific discovery called Imperial Virus now enables you to clear your place of every rat on it. The amazing feature of it is that it is not a poison and affects rodents such as Rats, Mice, Gophers, Prairie Dogs, Ground Squirrels, etc., only. It is perfectly harmless to humans, stock, poultry, pets. It can, therefore, be spread anywhere knowing it will kill only the pests you want to get. One rat affects the others and in a short time the whole colony is exterminated, root and branch. They die outside, too, hunting air and water.

## YOU CAN TRY IT FREE

The manufacturers of this amazing Virus, to get it quickly established and widely used, are making a Special Guaranteed Introductory Offer of two regular, big, full sized (double strength) $1.00 bottles, for the price of one. Use one yourself and sell the other to a neighbor, thus getting yours free. They will also tell you how you can make money telling your friends about it. As this offer may not appear again, you should act at once or clip for future reference.

You need send no money, just your name and address to the Imperial Laboratories, Room 223, 2110 Grand Avenue, Kansas City, Mo., and pay the postman $1.00 and a few cents postage, when the two bottles arrive. It costs you nothing if it does not do the work, as they positively guarantee to refund your $1.00 any time after 30 days if you are not satisfied.



# WILL RADIUM AT LAST OPEN THE DOOR OF THE GREAT UNKNOWN?

If you are sick and want to Get Well and Keep Well, write for literature that tells How and Why this almost unknown and wonderful new element brings relief to so many sufferers from Constipation, Rheumatism, Sciatica, Gout, Neuritis, Neuralgia, Nervous Prostration, High Blood Pressure and diseases of the Stomach, Heart, Lungs, Liver, Kidneys and other ailments. You wear Dessens Radio-Active Solar Pad day and night, receiving the Radio-Active Rays continuously into your system, causing a healthy circulation, overcoming sluggishness, throwing off impurities and restoring the tissues and nerves to a normal condition and the next thing you know you are getting well.

Sold on a test proposition. You are thoroughly satisfied it is helping you before the appliance is yours. Nothing to do but wear it. No trouble or expense, and the most wonderful fact about the appliance is that it is sold so reasonable that it is within the reach of all, both rich and poor.

No matter how bad your ailment, or how long standing, we will be pleased to have you try it at our risk. For full information write today—not tomorrow—Radium Appliance Co., 687 Bradbury Bldg., Los Angeles, Calif.



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A dependable fast cutting Log Saw at the right price. Powerful 4-cycle engine with two fly-wheels gives steady power, sawing logs or trees, or for belt work. Lever Control.

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For a short time only we will include the WITTE Tree Saw Equipment FREE with each Log Saw. Write for Catalog

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# How I Screen Water for Irrigation

*That annoying problem—clogged outlets in hillside irrigation. The writer of this article tells how he has solved it by attacking the trouble at its source. If you use gravity water, this hint should help you.*

THOROUGH screening of the water used to irrigate hillside land is absolutely necessary in order to insure protective, thorough and time-saving irrigation. This applies of course primarily to the cultivated orchard, the spring planting of hay, or some cultivated crop, where it is necessary to irrigate freshly-stirred soil by means of "rills" and small furrows. The use of a minimum amount of water per rill in such irrigation is essential to prevent washing, yet it is difficult to keep the water flowing, because of the annoying tendency of the holes in the flume to clog.

This tendency can be overcome almost completely by screening the water thoroughly as it flows onto the ranch at the head-gate. The following screening system easily can be installed, and will prove at once reliable and a great aid to the hillside irrigator.

CONSTRUCTION OF BOXES

Construct two stout boxes, 5x4x4 ft., making these of plank, or, better still, of concrete. These are to be placed so that the irrigation supply flows from the head-gate into the boxes before passing into the flume distributing the water over the ranch. The water should flow from the gate into one of trough of galvanized iron. Such troughs are durable and will never leak.

The troughs from both boxes must be placed low enough to insure that the water level in each box is lower than the screens which catch the chaff and which naturally will sag more or less from its weight.

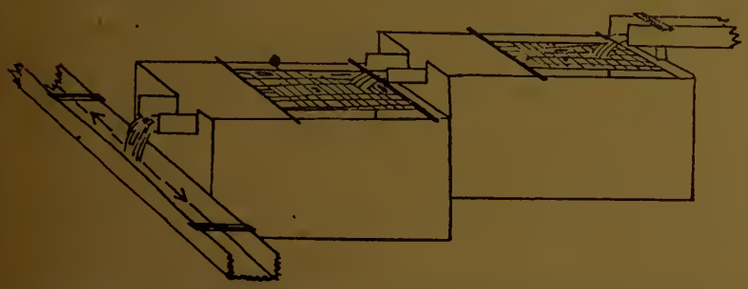
KINDS OF SCREEN

Heavy galvanized screen should be used—about ¼-in. mesh over the first box, and 3-16-in. mesh over the other box. This screen should be fastened (preferably with strips or lath) to the lower side of a stout frame and the frames should not cover the full width nor length of the boxes, so that if the screens should fill with chaff and overflow, the water will return to the boxes rather than wash out over the land.

The screen frames are supported by their projecting ends, and are placed on top of the boxes.

The screen for the second box may be set down into the box to gain a few inches, especially if there is not much fall to the ground. The screens must not be nailed in place, as it is necessary to remove them to dump off the chaff. In fact, it is advisable to beat the screens thoroughly with a stick in order to shake out all adhering chaff.

The size of boxes naturally will be governed by the amount of water to be screened; the size here described should take care of 15 to 20 inches of water, and these have been made large enough to eliminate the necessity for taking out the settlings of sand and dirt as often as would be necessary with smaller boxes. Furthermore, screens of ample size need cleaning less frequently. It



these boxes, and the other box should be so placed that the overflow from the end of the first box can run into it.

If the ground has not sufficient slope for the water flow into the boxes directly from the head-gate, then they must be sunk into the ground to the required depth. The second box must be set lower than the first—enough lower to be below the outlet of the first box, with several inches to spare, as there should be room also for the screen that rests on top of this box.

The overflow from one box to another and to the distributing flume is provided for by cutting out an opening in the top plank at the end of each box and fitting snugly into each opening a

should be remembered also that these boxes serve a valuable purpose as settling chambers for the sand and dirt carried along by the water, which also clog holes in the flume.

With such a screening system one needs to spend but little time in looking after the irrigation. Once it has been regulated, a little attention morning and evening is all that is required to open a hole here and there that may have become clogged. As water must run for several days at a time on hilly land to insure thorough soaking, it is a relief to reduce the flow of water through each rill to a minimum and to know that water is running constantly through every rill.—Hans. K. Hoerlein.

## Our Underground Water Supply

(Continued From Page 8)

the "head" pumped off, is offset by the pressure forcing the water into the casing.

WHY LEVELS VARY

There has been a good deal of speculation among water users as to why the water levels in the wells vary, one year with another. This is due to the variation in amount of snowfall in the mountains, and rain in the foothills and valleys. As a rule, the water levels in the valleys are not affected by the winter's snow and rain until about August or September of the following year. The time, in fact, depends entirely upon the nature of the underground strata.

This accounts for the higher water levels in the fall and winter and the lowering levels during the late spring and summer. Surface strata generally do not furnish as much water as the deeper ones, and are more quickly affected by the amount of rain and snowfall.

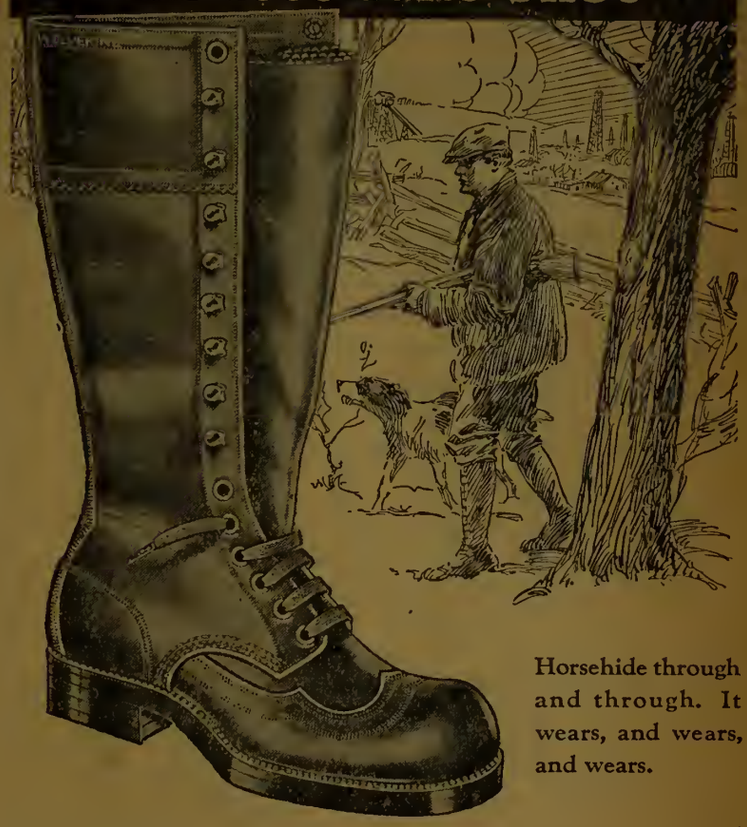
FOUNDATION OF WEALTH

Thus, the underground supply of water stored in the mountains, is the backbone of wealth in many of our arid districts, which do not have surface water systems. Irrigation has doubled and trebled the production over that secured by dry farming; hence it pays to have proper and competent engineering advice in the development of irrigation projects.

EFFICIENCY MAKES PROFIT

The more efficient the system, the more profitable it will be. This fact is borne out by a great many large ranches which have been subdivided into smaller tracts. In most such instances, capable engineers have designed the system for the whole tract, and each small subdivision is provided with its individual pumping unit. One of the more recent developments of this nature is on the James ranch in the San Joaquin Valley, where several thousand acres have been divided into 80-acre tracts, with a pumping unit for each. This vast acreage rapidly is being transformed from a body of almost non-producing land into very valuable small ranches, intensively cultivated. Cause: Irrigation. Result: Happiness and prosperity.


WOLVERINE!
The 1000 Mile Shoe



Horsehide through and through. It wears, and wears, and wears.

Now! A High-Cut 1000 Mile Shoe!

HERE is the king of the storms. The WOLVERINE, 1000 Mile High-Cut Shoe. All horsehide, the toughest leather on earth, tanned to the softness of calf by our own double tanning process. This is the ideal footgear for strenuous outdoor work or play. For hunting, fishing, cross country motoring, or camping. For mining men, lumbermen and for the oil fields, for any purpose where a husky, "he-man" shoe is needed, you'll find the WOLVERINE High-Cut the best shoe you ever owned. Here is foot protection when the blizzards rage, and dry, warm, comfortable feet are a blessing. You never put a more comfortable shoe on your feet. The uppers are thick, warm, perfect protection; yet every part is tanned to the softness you have found only in thin, perishable shoes before. Beautifully made, strongly sewn and finished, and double reinforced where wear is greatest. Once you wear this shoe you'll never be without a pair for hard Winter wear. Your dealer has WOLVERINE SHOES, or can get them for you. Ask for them.

$1000 Gold Prize Contest!

We are giving away $1000 in GOLD to wearers of WOLVERINE SHOES. Write to us at once for details of this great contest. WRITE TODAY, before you forget about it.

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Please send me at once, free, full details about your $1000 GOLD PRIZE CONTEST.
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Address .....
P. O. and State .....
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Big Money Boring Wells

One Man One Team

Have water on your own farm. In spare time make wells for your neighbors. It means $1000 extra in ordinary years, double that in dry years. No risk—no experience needed.

Outfits for Getting Water Anywhere

Earth augers, rock drills and combined machines. Engine or horse power. *Write for easy terms and free catalog.*

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# SAVE MONEY

ON

# Oliver Farming Implements

*We are overstocked and offer the following prices that cannot be equaled.*

**WE PAY THE FREIGHT TO ANY POINT IN CALIFORNIA**

| | Regular Price | Our Special Price |
|---|---|---|
| Black Hawk Manure Spreader | $250.65 | $224.00 |
| Oliver No. 50-00 50-tooth Harrow | 24.15 | 12.25 |
| Oliver No. A23 Cultipacker 75 in | 124.50 | 78.00 |
| Oliver No. A27 Cultipacker 98 in | 153.00 | 98.00 |
| Oliver No. A28 Cultipacker 110 in | 170.50 | 108.00 |
| Oliver No. 200 Cultipacker trailer, 72 in | 169.00 | 99.00 |
| Oliver No. 15 Steel Wheel Wagons | 73.35 | 57.00 |
| Oliver No. 78 2-Bottom, 10-in. Eng. Plow | 218.50 | 137.00 |
| Oliver No. 78, 3-Bottom, 10-in. Eng. Plow | 285.00 | 169.00 |
| Oliver No. 78 2-Bottom, 12-in. Eng. Plow | 218.50 | 137.00 |
| Oliver No. 78 3-Bottom, 14-in. Eng. Plow | 285.00 | 169.00 |
| Oliver No. 79 4-Bottom 14-in. Eng. Plow | 375.00 | 232.00 |
| Moline No. 20½ 4-Bottom, 10-in. Eng. Plow | 285.00 | 218.00 |
| Oliver No. D43 3-Bottom, Disc Eng. Plow | 297.00 | 188.00 |
| Oliver No. D44 4-Bottom Disc Eng. Plow | 333.00 | 209.50 |

All plows listed are power lift.

Send in your order at once. Prices like the above will make short shift of selling such well known goods. Enclose check for 10 per cent balance sight draft, and remember WE PAY THE FREIGHT.

## FARM ENGINEERING CO.

728 "L" St.
Sacramento, Cal.

117 Main St.
Chico, Cal.

*Paints, Varnishes and Building Materials*—Save money by consulting the "Farmers' Classified Market Place," pages 30 and 31.

# Sunflowers

## Foolish Answers to Foolish Questions

How is spaghetti raised, and is it profitable?—"Ambitious."

The spaghetti, as you must know, is simply the core of the macaroni fruit, and is harvested after the macaroni has been stripped from the vine. The most popular variety is that known as the "red." Consumption of this product is very irregular, but in localities where it is served with garlic, the demand is strong.

How can I get rid of moles?—"Puzzled Subscriber."

No you don't! We advised one inquirer to poison them and found later she had referred to moles on her chin! You are not the only one who is puzzled. There are moles and moles. Write again!

I require legal advice. I broke my arm cranking my flivver, so I bought a patent, so-called self-starter that works with the foot. In kicking it, I sprained my ankle. Can I sue the manufacturer?—"Disgusted."

Yes, but what's the use! If the darn things don't get you in one way, they will in another. You can't beat a flivver!

How can I rid my lawn of weeds without pulling them out?—"Easy Goin'."

One good method is to "stall" about having to work nights and Sundays until the wife pulls all the weeds.

### DEFENSE OF THE INNOCENT

The libelous discredit that is heaped upon the skunk,
Is purely unadulterated, superficial bunk—
Why, every one who's smelled the beast at first thought a rose—
But why explain a situation everybody nose!

—Justin Nutt.

Fair Young Damsel: "Do you guarantee these night gowns?"

Sly Young Clerk: "Yes, you can't wear them out."—Awywan.

## The "Green" Hand

The Boss—"What's the idea of hanging that gate before you have the fence built on either side of it?"

His Nibs—"Why, I thought we'd better put up the gate first so as to get the cattle accustomed to coming through it before we strung the wire!"

### ISN'T HE ORIGINAL?

Distinctive personality
Is quite important, seems to me.
"Ham and eggs" or "Bread and jam"
As "Jam and bread" or Eggs and ham,"
Are taken from the commonplace
And may be used with added grace

Likewise, why speak of "Knife and fork"?
If henfruit goes ahead of pork;
The fork may well precede the knife,
Thus adding a new zest to life.
Distinctive personality,
Is quite important, seems to me.

—Justin Nutt.

## Not Enough Endurance

"Sam, won't you ever get enough of shooting craps?"

"No sah, I'se afraid not. Dey's a limit to human endoorance!"

### A FARMER'S FREE VERSE

The raucous crowing of a rooster
Just at dawn of a cool Sunday morning.
After a Saturday night in town.
Sleep ruined. Sulfurous blasphemy.
Wrath. A chopping block. An axe—
Chicken dinner!

## By Request

Customer: "I say, do you ever play anything by request?"

Delighted Musician. "Certain, sir."

Customer: "Then I wonder if you'd be so good as to play a game of dominoes until I've finished my lunch."—Exchange.

## Very Considerate

"Why do they put corn meal on a dance floor?"

"Why to make the chickens feel at home."—Exchange.

## BULLETIN BOARD

### SNOOPING AMONG THE EDITOR'S FILES

**Here's a Good One!**—The story of an Irish herdsman who made $40,000 for his employer by kindness to an animal. There is a lesson in this remarkable article—a lesson for every animal breeder. Coming soon.

**Will Your Tractor Work Seven Years?**—In the December number Walter Gardner will tell of a tractor owner whose machine has been used for seven years with practically no trouble. And he explains the simple method that has made this record possible.

**Is the Agricultural College Graduate a Practical Success?**—An unusual answer to this interesting question, in December.

**Real Christmas Fiction**—Would you enjoy a true Christmas story, replete with action and heart-interest? It is just such a story that we have selected for the next number, by far the most thrilling narrative ORCHARD and FARM has published.

### NOW THAT YOU HAVE REACHED THE LAST PAGE—

Turn back and read the interesting, informative announcements in the advertising columns of this issue. You will find opportunities, education, information—set forth with illustrations and in type that is "easy to read." One advertiser announces a prize contest in which many winners will receive cash awards. Others describe new, money-making inventions. Be sure to read the "ads." And now—

**May ye harvest moon smile upon thee, and bring treasure—**
**May thy Thanksgiving feast afford cheer in good measure!**

# Longer Life For Tractors

## Wagons, Silos and Farm Implements

PROPER paint protection will preserve your farm tractors, vehicles, silos and various agricultural implements and machinery. Such protection is vitally important to you because it is economical.

Constant exposure to all kinds of weather tends to materially deteriorate the usefulness of all farm implements and buildings. A protective coat of good paint will make them last longer, look better.

Always buy the best paint—it is more economical—it costs less in the end.

Good paint is easier to spread and so goes farther. Besides it lasts five or more years longer than cheap paint, and always looks better.

So when you figure *labor, square yards covered, lasting qualities* and *appearance,* cheap paint is a great deal more expensive than good paint. It pays to invest in quality, when quality means *economy.*

Remember that Fuller makes a "special paint for every purpose." No matter what you have that needs painting there is a Fuller product made to cover it.

Here are but a few of the many Fuller paints that make for economy on the farm.

**Pacific Wagon Paint:** Adapted for repainting Agricultural Implements, Farm Wagons, Farm Machinery, Windmills. A glossy and durable finish offered in seven colors.

**House Paint:** Pure Prepared Paint, Phoenix Pure Paint for Painting Houses. . The purest, best protective and most durable paint made. Made in 32 colors.

**Barn and Roof Paint:** A protective coating for Barns, Roofs, Fences. Dries with a good gloss and wears. Economical in cost and dependable in quality. Six colors to select from.

**Rubber Cement Floor Paint:** A sanitary, waterproof and durable paint for floors and kitchens, closets. Attractive in color and gloss. Dries hard over night. Made in 12 colors.

Also makers of Decoret, Washable Wall Finish and Silkenwhite Enamel.

### Since '49

For 72 years Fuller has been making "paints for every purpose."

This experience means a thorough knowledge of paint manufacture and has resulted in skill, second to none, in mixing the very best of materials to obtain only the best products.

Fuller's Pioneer White Lead base is finely ground pure white. It must pass through a silk screen with 40,000 meshes to the square inch. We use special machines for mixing the materials in scientifically exact proportions. Fuller products are famous for their covering capacity, ease of spread and great durability.

Try Fuller's—a western paint for western use—a paint *you know.*

### Free Advice on Painting

If you cannot get a master painter, and wish to paint your home yourself, but do not know much about painting, ask Fuller's Specification Department for advice. How to treat the old paint. What color scheme to use. How many coats. The proper brushes. The best time to paint, etc.

Take advantage of Fuller *Service* as well as Fuller Paints.

Write us *now.* Take steps to *paint now.* Don't let weather depreciate your investment.

# Fuller's
## SPECIFICATION
# Farm Paints

**House Paint - Barn & Roof Paint**
**Wagon Paint - Rubber Cement Floor Paint**

**M'f'd. by W. P. Fuller & Co., - San Francisco**

Pioneer Manufacturers of Paints, Varnishes, Enamels, Stains and PIONEER WHITE LEAD for 72 Years.

Branches in 16 cities in the West—Dealers everywhere—Established 1849

### Send Coupon For Interesting Book—FREE

Mail coupon for "Save the Surface"—a free book that tells of the importance of good paint.

We'll send also our booklet describing Fuller's Specification Farm Paints, Varnishes, etc. Send coupon now. Find out what good paint means to you.

W. P. Fuller & Co.
Dept F-56 San Francisco.

Please send me, without charge, a copy of "Save the Surface" and your booklet of farm paints and varnishes.

Name.....

Street.....

City.....State.....

Send the coupon today for our free recipe book—prepared by authorities. Every recipe tested, proved and ready for your use.

*The Iron Food for Vitality*

# Six Delicious Ways

## *To Serve Stewed Raisins*

—an economical dish to start the day's work

STEWED raisins are a *luscious fruit* rich in *iron*—a most healthful regulator for entire families.

*—Be like the "Iron Men of Yesterday," eat raisins, "the Iron Food, for Vitality."*

Try these ways to serve them. See which your men folks like best.

Serve plain with cream.

Try them with any oatmeal, simply mixing them with the cereal.

Always keep a box of raisins in the house. Use them to make any plain food tempting—for an economical dessert, a sauce for baked apples, or a flavor for ice cream. Raisins are delicious, healthful and economical—use them often.

## Iron and Energy

Raisins are rich in food-iron—the *natural,* assimilable kind. You need but a small bit of iron daily—yet that need is vital. Raisins in the diet daily will help to *insure* it.

Food-iron makes red corpuscles in the blood and brings vim and energy to men. Helps them to work better.

Then raisins furnish *rare* nutrition—1560 calories of energizing nutriment per pound. More of *this* type of nourishment than eggs, milk, meat or fish. Raisins are mildly laxative also—good for clear complexion and clear brain.

So no other breakfast dish is better than stewed raisins, if you want to serve foods that are both good and good *for* you.

Raisins are cheaper by 30 per cent than formerly—see that you get plenty in your foods.

Try them now—for ten days as a test. See the results. Your entire family will enjoy this luscious food. *Our free book tells how to stew raisins.*

# SUN-MAID RAISINS

Sun-Maid Raisins are packed in a great modern, glass-walled sanitary plant in sunny San Joaquin Valley—they're wholesome, sweet and clean.

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*Membership 13,000 Growers*
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Please send me copy of your free book, "Sun-Maid Recipes."

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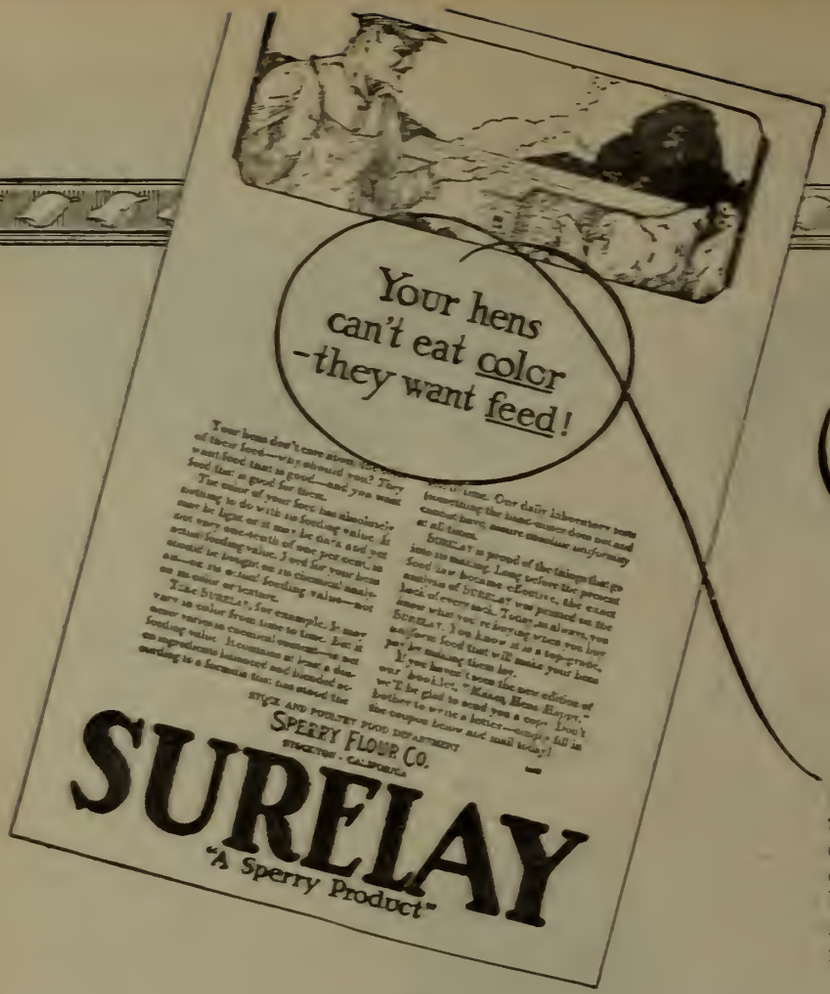


# A good thing to remember!

More and more poultrymen have begun to see the light on this color question. The less you care about color or texture and the more you care about feed value—the better feed you will buy, the better your hens will like it, and the more eggs you will get. That's a simple, straight formula—and a mighty good thing to remember.

THERE'S one test—and only one test—of feed. And that's *feed value*. No poultryman—no matter how seasoned he is—can tell the quality of a feed simply by *looking* at it or *feeling* it. Because a feed can be light or dark, fine or coarse, and yet not vary one-tenth of one per cent in actual feeding value.

Is there any difference in the feeding value of yellow, white or mixed corn? No! Is there any difference in the feeding value of white, gray or red oats? No! Is there any difference in the feeding value of white or red wheat? No! The same thing applies to meat meals, oilcake meals, charcoal and other ingredients that go into the blending of a proprietary feed.

That's why color means little, if anything. Texture means little, if anything. Feed value means *everything!* Feed value, after all, is the thing you pay for.

And SURELAY sees to it that your hens get the *same feed value* every time. It may vary in color from time to time. It may vary a bit in texture. But it *never* varies in net feeding value. Our daily laboratory tests take good care of that!

If you want to see why SURELAY is a high-grade *uniform* feed that will make your hens pay by making them lay—send for the new edition of our booklet, "*Makes Hens Happy.*" Your copy is waiting for you—and it's free. Simply fill in the coupon and mail today!

STOCK & POULTRY FEED DEPT. **SPERRY FLOUR CO.** STOCKTON, CALIFORNIA

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# ORCHARD and FARM

CALIFORNIA STATE

DECEMBER, 1921

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Offices: Los Angeles and San Francisco

TEN CENTS

READ LUTHER BURBANK'S ARTICLE--PAGE 5

# How Much Loss Will You Have to Bear?

BROWN ROT of the apricot has seriously cut in on growers' incomes during the past two years. And this damaging disease is just as much in evidence this year. Unless you control it in your orchard, you will be among those suffering a loss.

You can overcome apricot brown rot and scale effectively with Universal and Orchard Brand Sprays. Apply them now and you can rest assured of a big clean crop.

**ORCHARD BRAND**

| | | |
|---|---|---|
| B.T.S. (dry barium sulphur) | 40-50 lbs. | 200 Gal. Tank |
| or Bordeaux Paste | 36-40 lbs. | |
| or Bordeaux Powder | 18-20 lbs. | |

***If scale alone is present use***

**Dormant Soluble Oil.....14-15 gals. per 200-gal. tank**
**or Crude Oil Emulsion.....18-20 gals. per 200-gal. tank**

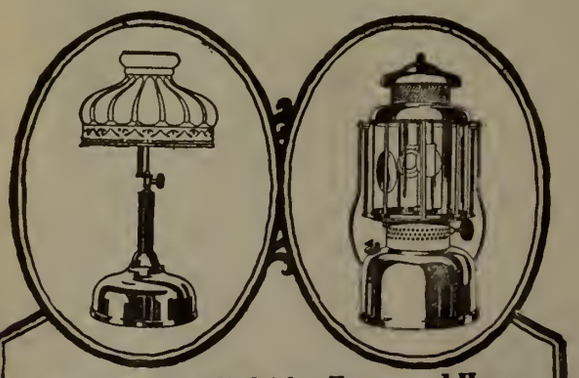
These are made by experts from the finest materials, mixed according to formulas proved best for Northern California needs. Universal and Orchard Brand Sprays stimulate trees and vines, kill the eggs of destructive insects and remove moss and lichens.

*Our entomologist, Paul R. Jones, in San Francisco, or Frank B. Herbert, our assistant entomologist, at Los Gatos, will tell you just what to use and how to use it. No charge. Send for our new paper on brown rot control.*

**Insecticide Department**

**BALFOUR, GUTHRIE & COMPANY**

**San Francisco, 350 California Street**



## Night-time Daylight for Farm and Home

You can, now, have the light others enjoy and do away with all the bothersome features of old style oil lamps. The Quick-Lite gives the most brilliant light you ever used—without eye-straining glare, or injurious flicker. For general home use, there is nothing better. Ideal for reading and sewing because the pure white light of the Quick-Lite is a *natural* light easy on the eyes, more restful than electricity, gas or kerosene.

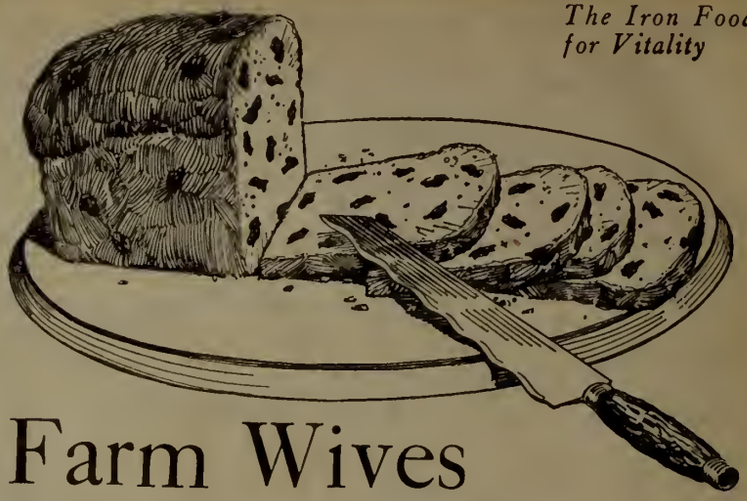
## Coleman Quick-Lite Lamps and Lanterns

Make and burn their own gas from common motor gasoline. Give 300 candle power of brilliant light. Light with matches, no torch needed. No smoke, no soot, no odor. No wicks to trim. No chimneys to wash. Made of brass, heavily nickeled. Can't spill fuel or explode, even if tipped over. Cost to use a trifle more than a cent a night. Lamp is fitted with Universal Shade Holder. Lantern has mica globe. Won't blow out in any wind. Rain-proof and bug-proof. Built to stand all the hard-knocks of after-dark farm-work—feeding, milking, hauling, plowing, harvesting, grading, ditching, building—any job, anywhere. If dealer can't supply you, use nearest address, and write to Dep. OD23

**The Coleman Lamp Company**

Wichita St. Paul Toledo Dallas Los Angeles Atlanta Chicago

*The Iron Food for Vitality*



# Farm Wives Save Two Ways

TRY this for the next two weeks:—Let every other loaf of bread you bake be *raisin* bread. Note how your men take to raisin bread. Note that they eat *more* bread and less of the more expensive foods. You'll save more expensive foods and save left-over bread.

*The Christmas Pudding made with "Christmas Bread"*

### And Note This Too

See also how you can use the left-over raisin bread—when there is any—in delicious raisin-bread pudding.

No matter if your men have frowned on bread pudding. This is raisin-bread pudding! The luscious fruit-meats make it a *new dish* with new appetite appeal. Use plain bread in the same way—simply add the raisins when you make the pudding.

Do this and you'll have no further waste of left-over bread.

Raisins add nutrition as well as flavor to scores of foods—1560 calories of energizing nutriment per pound. So they're ideal food for men who work hard all day.

**Bread Pudding**

¾ cup Sun-Maid seeded raisins, 2 eggs, ½ teaspoon salt, butter size of an egg, ½ cup sugar, cinnamon to taste, ½ large loaf stale bread, 2 bananas or apples.

Soak the stale bread over night in water. When time to make the pudding press as much water as possible from the bread so the bread is about the same consistency as dough, then take a fork and get all lumps out. Do not leave the crust if it cannot be mashed to the same consistency as the bread. Add well beaten eggs, salt and stir. Add raisins mixed with the butter. Put into dish in layers, covering each layer with sliced bananas, sugar and cinnamon. Bake in slow oven until brown. Serve with whipped cream.

# SUN-MAID RAISINS

Sun-Maid Raisins are made from California's choicest table grapes. Cured in the sun. Packed in sanitary packages in a great, glass-walled, sun-lighted plant.

They are clean, sweet, wholesome American raisins—the kind you know are good. All dealers sell them. Insist on Sun-Maid brand.

Three varieties: Sun-Maid Seeded (*seeds removed*); Sun-Maid Seedless (*grown without seeds*); Sun-Maid Clusters (*on the stem*).

Raisins are 30% cheaper than formerly—see that you get plenty in your foods.

**Big Recipe Book FREE**

We've put our "hundred best recipes" into a valuable book that every farm wife should have. They make nutritious foods, for raisins furnish 1560 calories of energizing nutriment per pound. All the recipes are practical. And the book is FREE. So simply mail the coupon for it now.

**California Associated Raisin Co.**
*Membership 13,000 Growers*
Dept. B-712, Fresno, California.

CUT THIS OUT AND SEND IT

CALIFORNIA ASSOCIATED RAISIN CO.,
Dept. B-712, Fresno, California.

Please send me copy of your free book, "Sun-Maid Recipes."

Name .....

Street .....

City ..... State.....

**OUR EDITORIAL POLICY**

ORCHARD and FARM is a magazine of, by and for agricultural people. We believe that to the tiller of the soil is due the best that life affords. We believe that he is the bulwark of the Nation. We honor him as the basic producer. His problems are our problems; his triumphs our triumphs; his joys and sorrows, ours. To record his achievements and expose the duplicity of his enemies; to fight for and with him; to give him genuine help and practical information; to assist, entertain and inspire every member of his happy household—that is the policy of ORCHARD and FARM.

# ORCHARD and FARM

ESTABLISHED 1888

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"THE SILENT PARTNER OF THE SUCCESSFUL FARMER"

**YOUR QUESTIONS ANSWERED**

ORCHARD and FARM is an institution of service. Subscribers may receive, free of charge, answers to questions upon any agriculutral subject. Through its large staff of specialists, and its close contact with authentic sources of information, this magazine is able and willing to serve any subscriber who requires aid or information. Enclosure of stamped, self-addressed envelope with questions will facilitate reply direct by mail.

VOL. XXXIII Entered July 16 1917, as second class matter at the Post Office of Los Angeles, California, under act of Congress of March 3rd, 1879. Subscription price $1 a year. NO. 12

## Pithy Paragraphs

One man's loss is another man's gain. Brown lost his temper and Green gained an enemy.

The fellow who thinks the world owes him a living usually has a hard time collecting.

What is the most useful article on the farm? Now all together, we might as well admit it: "Baling wire."

Many of our troubles are like rain on a tin roof—not so serious when viewed from without.

Most "bitter pills" have a sugar coating—but they must be swallowed without hesitation.

A trust company trusts no one, and a trust is not to be trusted. What's in a name?

*CHRISTMAS SPIRIT—What is it? No one ever found it in a bottle; never has it been purchased with gold! For some it is but the ghost of half-forgotten memories; for others, the courage to smile. One there was who discovered it in great measure. He was a little old man, in tattered clothes, who fashioned a wonderful boat for a crippled boy. He had nothing to give but his labor and love, yet he prevented the tragedy of an empty stocking. Gold cannot buy the real Christmas spirit. But he may have it who will!*

Jas. C. Kollin

Managing Editor.

### GREAT OAKS FROM LITTLE ACORNS

Big opportunities and accomplishments often spring from small beginnings. No more interesting and valuable feature is found in ORCHARD and FARM than the "Market Place," where subscribers buy, sell, barter and exchange. Take a brief tour through this public market today. See pages 30 and 31.

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## Uncle Eb Is "Jest Nacherly Unfortunate."

"I'se dat unlucky," complained old Uncle Ebenezer, "dat if I woke up, settin' between a plate o' fried chicken an' a big slice o' juicy watahmillion, I'd have de lockjaw, an' be paralyzed in bofe ahms!"

Fortunately, very few are so completely discouraged as Uncle Eb. But those of us who have traded our hard-earned dollars recently for low-grade merchandise put out under unknown brands for the purpose of catching unwary bargain hunters—well, we have reason to be a bit downhearted. After all, the only way to make every dollar worth 100 cents on the present market is to buy only from reliable dealers and to pay particular attention to the "ads." The manufacturer or dealer stakes his reputation and business future upon an article that has been made known to the public through consistent advertising. Beware the man who says, "We can save you money because we do not advertise, putting the money that advertising would cost into our product." He who has an article of merit is proud to stamp it with his name and to "tell the world." Therefore, it is simply good business to become acquainted with ORCHARD and FARM advertisers. The convenient index below will serve as a pleasant "introduction."

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## Christmas Hints

We reprint John Doe's address label below just as a reminder to note the expiration date upon the cover of your copy. The month and year at the right indicate the issue with which the subscription will expire. It is a good idea

| | |
|---|---|
| John Doe<br>Greenville, Cal. | Dec 21 |

to check this up and make sure it is correct. If not, please write immediately. Notice your label now!

In order to avoid missing a single number of ORCHARD and FARM, we suggest that you send renewal order well in advance.

A number of very attractive clubbing offers are described in the advertising columns of this issue.

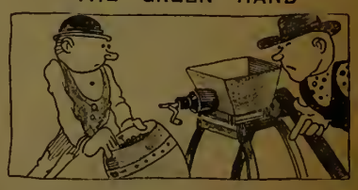
You can save money on your own magazines or secure Christmas gifts for your friends by taking advantage of these offers.

They may be withdrawn at any time. We always extend subscriptions from date of expiration when renewed. Therefore, you may accept the clubbing opportunities even though your own subscription does not expire for some time. See "ads" on pages 27, 29 and 32.

### JUST LIKE FINDING A DOLLAR IN AN OLD SUIT!

The thrill that comes once in a lifetime—when you go through the pockets of a discarded suit and find some money not included in "visible assets." ORCHARD and FARM subscribers are offered a remarkable opportunity to make some "easy money." No strings to this offer, which continues only until January 1. Be sure to read details on page 27 of this number. Don't miss this chance to "find" $25. You must act quickly!

### THE "GREEN" HAND



*The Boss—"Hi there, what are you up to now! Stop it. Stop it, quick!"*

*His Nibs—"Why, I'm just preparing a mineral mixture for the hogs. The regular stuff is all gone, so I thought I'd run these old bolts and nails through the feed grinder!"*

If patience is a virtue, John's employer surely will enjoy Celestial bliss! The new "hand" must have wrecked most of the machinery by this time! Yet the Boss believes he will learn something in time, in spite of having spent most of his life in the city.

But even the country-bred man can learn a lot about farming—from his neighbors perhaps, or from accounts of agricultural college experiments and research. ORCHARD and FARM endeavors to present the greatest possible amount of practical information in the least possible number of words and in the most interesting possible manner. Hundreds of our subscribers have written to tell us they like it. Do you?

### A Creed in Twelve Chapters

(12) Thrift.—Extravagance rots character; train away from it. On the other hand, the habit of saving money, while it stiffens the will, also brightens the energies. If you would be sure that you are right, begin to save.—Roosevelt.

# "West of the West"---Where Farming Is Best

This strange little "beast" is a guinea-pig of the Peruvian variety, bred for show purposes by Dr. J. A. Roberts, of Hollywood, the famous cavy authority. Thousands of cavies are used by laboratories for scientific purposes, most of these being of the smooth or short-hair breeds.

Yes, these are "horse-weeds," 12 feet high. But it takes a tractor to turn 'em under.

How much an attractive entrance adds to the beauty and value of a ranch! Note the inexpensive but effective stone pillars.

This fruit collector is said to gather 40 pounds a minute and to do the work of 3 men — International Photo

Here's a California farm girl with some California apples. The fruit is from the Ihmsen ranch, near Victorville. — L. A. Chamber of Commerce Photo.

Luther Burbank, world's most famous plant-breeder, inspecting one of his wonder-creations. Mr. Burbank writes exclusively for ORCHARD and FARM

[illegible] and the motor truck have revolutionized rural transportation. Here is the motor [illegible] loading on a "cargo" of perishable produce for quick delivery to the city, 30 miles [illegible]

One of the best ways to increase yields is to reduce the gopher population. For sure results, many ranchers swear by the Macabee-type trap. George P. Weldon furnishes this evidence of effective destruction.

ORCHARD and FARM

VOL. XXXIII. DECEMBER, 1921 NO. 12

# Luther Burbank--- World Famous Naturalist Writes Exclusively for Orchard and Farm

## The Pear—Moulded by Human Mind

THE evolution of the pear, above that of most fruits, discloses what human mind and hand can accomplish in the improvement of plants.

The original forms from which all our pears have been developed, whether of the European "Pyrus communis," or the "Pyrus sinensis" of the Orient, were small, hard fruits, and scarcely, or not at all, edible.

Even in the time of Pliny, although a large number of varieties were under cultivation, they were not edible until cooked; for that writer informs us that "all pears whatsoever are but a heavy meat unless they are well boiled or baked." At that time they were probably smaller than, but somewhat similar to, our ordinary quinces, or possibly not so good. Today we all know and relish the luscious Bartlett, Seckel, Duchess and other like pears.

Professor Van Mons, in France, about a century ago, worked faithfully on the pear, devoting nearly a lifetime to its improvement. Although some of the best pears of this age, such as the Bartlett and the Seckel, originated by chance, we owe much indeed to the indefatigable labor of this careful, painstaking plant-breeder. Many of his varieties are still cultivated, and it is principally from them, either directly or indirectly, that most of the best varieties of today have been developed.

### ORIGIN OF VARIETIES

In America the pear has been cultivated ever since the first settlers landed on the Atlantic Coast; and many new varieties, mainly by accident, have originated in this country. The Seckel, one of the most delicious of all pears, produced early in the nineteenth century on the farm of a Mr. Seckel, near Philadelphia, was pronounced at the time by the London Horticultural Society to be superior to any of the European fall varieties then known.

The Chinese sand pear was introduced into the Eastern States a little more than fifty years ago. This species first was grown for ornamental purposes, the tree being exceedingly graceful, the flowers attractive and the fruit of a pleasing fragrance. When this pear was grown along with the European variety, occasionally hybrids were produced. One such originated on the place of Mr. Peter Kieffer, near Philadelphia, and was introduced as the Kieffer pear. The LeConte is another fairly well known pear, which was produced from a cross of this Oriental pear with some of the common cultivated varieties. These hybrids have become the standards in the region of the Gulf States, where the regular European pears do not thrive.

On the Pacific Coast, especially in Central and Northern California and Oregon, pears grow to perfection. The Bartlett is cultivated in this region more than any other, thriving well from Southern California to Puget Sound. Other especially popular varieties are the Winter Nelis, Seckel, Clairgeau and Angouleme. The Kieffer and the LeConte have been grown somewhat in the dry interior valleys and in Southern California; but usually they are condemned, since their fruit is far inferior to the best varieties of the European pear, which flourish so well on this Coast.

### CALIFORNIA NATIVE TYPES

Several varieties of the pear have originated in California. Block's Acme is a promising kind that was produced from a chance seedling on the farm of A. Block of Santa Clara. The Barry, the Wilder and the Fox are three other California seedlings which are grown to some extent, each possessing some commendable properties, but none producing a tree symmetrical in form.

The Barry is rather prolific, and it is said to be replacing the Winter Nelis in some sections of the State. And a more recent introduction, the Crocker, is promising as a winter variety. The fruit is large, handsome and most excellent in quality, a superb keeper, lasting well into the winter, and for these reasons rapidly supplying a real want. It is said that the trees are vigorous and productive.

## *Some Things You May Not Know About Pears*

***IN THIS valuable article Mr. Burbank gives some odd bits of pear history. He tells of his remarkable experiments with this fruit and suggests a new and interesting field for scientific research.***

***In presenting the original and exclusive literary work of Luther Burbank, ORCHARD and FARM gives its readers a feature available in no other farm journal.***

***Constantly besieged with requests for articles from publishers all over the world, the great plant breeder puts aside the most flattering offers. Yet, despite his busy days and advanced years, he finds time occasionally for a contribution to his favorite agricultural magazine. ORCHARD and FARM spares no expense in giving its readers the best! Be sure to read this interesting feature.***

WRITTEN ESPECIALLY FOR ORCHARD AND FARM

By Luther Burbank

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## Improving the Pear

I HAVE raised and fruited numerous seedlings from the Bartlett, Seckel, Le Conte, Kieffer and other well known varieties, and have noted many variations. The fruits of seedlings of the Seckel usually are much smaller than those of the other varieties, even more so than that of the original.

Among the great number of seedlings, not only from this variety, but also from many others, I have not yet produced one sufficiently pronounced in all characteristics, at least to the degree that I consider indispensable, for a variety worthy of introduction. HOWEVER, AT PRESENT I HAVE A CROSS OF THE BARTLETT AND THE LE CONTE THAT GIVES GREAT PROMISE, BEING AN UNUSUALLY STRONG GROWER AND REGULAR BEARER, PRODUCING ENORMOUS, SMOOTH PEARS OF THE LE CONTE FORM, BUT OF MUCH BETTER QUALITY.

### JAPANESE IMPORTATIONS

Thirty-five years ago I imported from Japan large quantities of the Chinese sand pear seed, which is a distinct type of the pear, but the fruit is mostly inedible except when cooked, and even then scarcely edible. The trees, however, are very productive, less subject to blight and far better growers than the European pears. They seem to vary more in growth than in any other characteristic.

It is not uncommon for some seedlings to attain a height of six or seven feet the first year, while others from the same lot of seeds, under exactly the same conditions, will grow only a few inches. The rapid or slow growth, as the case may be, is a characteristic that each individual seedling retains throughout its existence. There is but little variation in the fruit of the Chinese pear in form, size or quality.

In the care of the seeds, and in the planting and raising of seedling pears, I use the same methods as those described for the apple. Special care must be taken of the seeds, however, it being strictly essential that they be kept moist; for a pear-seed once having become thoroughly dried, will not germinate.

*Seedlings of odd shape, which emphasize the influence of man in the evolution of the pear, as commercially grown.*

## My Observations on Culture of the Pear

THE pear will endure more moisture in the soil than most of our cultivated fruits; even more than the apple, thriving in a clay soil where stone fruits scarcely will grow. But to produce the best fruits the pear should be planted in a strong, but not too heavy, well drained soil.

Unlike most of the other cultivated fruit trees, the pear does not take kindly to excessive cultivation or pruning; especially is this true in California. THE MOST PRODUCTIVE ORCHARDS I HAVE EVER SEEN WERE PLANTED ON HEAVY SOIL, NOT CULTIVATED AT ALL, AND PRUNED VERY SPARINGLY.

One of my neighbors several years ago planted about four acres of Winter Nelis on a fine alluvial soil along Santa Rosa Creek. The soil was cultivated thoroughly every year, and the trees were trained into most beautiful forms. Another neighbor obtained a half dozen trees of the same variety from the same lot and planted them at the same time very close together in an out-of-the-way place, where they received scarcely any care or attention; the ground was never plowed and only rarely was the spade used.

BUT THESE HALF DOZEN NEGLECTED TREES PRODUCED MORE FRUIT EACH SEASON THAN THE

(Continued on Page 25)

# "I Like Hogs"—The True Story of a City-Bred Farmer Who Was More Alive Than Dead

***HE WAS sent West to die. But after giving the doctor's verdict due consideration, he laughed up his sleeve and determined to remain upon this terrestrial globe for an indefinite period. Carl Meiners' story proves that pluck, brains and agricultural college training can overcome even such a terrible handicap as being "born and raised" in a city. You will appreciate his up-to-date methods.***

Written by The Editor

MEINERS needn't have told us. The fact that he liked hogs was apparent in his every glance as he studied his prize winning Hampshires. Yet, this laconic statement gives one important clew to his early success.

Carl G. Meiners not only likes hogs, but also cattle, and the smell of freshly plowed earth, and the freedom of the beautiful California mountain valley where he makes his home.

Having hung the purple ribbon above the pen of his champion boar, "O. U. R. Masterpiece Again," Meiners seated himself upon a bale of hay in the entrance to the Fair grounds hog barn. This was his first experience as an exhibitor, he confided. "I rather like this Fair stuff, too," the young breeder smiled.

We followed his glance to the card above his exhibit space. For a "one timer" he had quite a collection of ribbons. His two and one-half year old boar at the Ventura County Fair defeated both the Sacramento and San Fernando champions. To be sure, at Riverside, although among the top-notchers, he did not fare quite so well, being placed second.

But Meiners philosophically remarked, "Its all in the game." It was from some of the other and older hog men and not from the owner of "Masterpiece Again" that criticism of the decision was heard. At any rate, the opinion seemed almost unanimous that out of the Ojai district of Ventura County, suddenly had appeared a "dark horse" of surprising attainments and the name of Meiners' "Cheery Acres Rancho" no doubt will appear with increasing frequency in the annals of swinedom.

Cheery Acres is partly rented and partly the property of the young Hampshire enthusiast. The home ranch consists of over 1000 acres, originally carved out of virgin oak forests in 1876 by the grandfather of the present operator.

Meiners has taken over also the grade cattle (many of them "scrubs") which roamed the hills, and by use of registered Hereford sires is improving the herd rapidly.

### IMPROVING CATTLE ALSO

An eight-months old Hereford bull of excellent breeding was one of his 1921 purchases. The cattle project has only begun. But if it goes forward as rapidly as the hog enterprise, the young farmer soon will have added another profitable department to his ranch.

But to return to Meiners' hobby—If any reader thinks there is no money in hogs, let him consider this breeder's two-year record.

### A PROFITABLE RECORD

The original purchase in 1919 consisted of four sows and the boar which later made a sensation in the show ring. These cost him $700. Other purchases brought the initial cost of his herd to about $1600.

He has sold little breeding stock so far, retaining his best gilts. But gross sales to butchers and breeders have amounted to over $7000, or more than four times the total investment, while the stock now on hand is valued conservatively at $6000.

### GOES IN FOR GRAIN

But not alone has the hog department brought prosperity to the owner of Cheery Acres. He raises from 300 to 350 acres of grain annually, of which 150 to 200 has been the average area seeded to wheat.

Concerning his tillage methods, Meiners says:

"This ranch for years had been only half-farmed by a constantly changing set of managers and renters. The soil a good part of time had been merely disced or harrowed before seeding, and at no time had been more than surface-scratched.

"Hampered by a lack of great means, I have been forced to go ahead slowly in buying equipment, and it is only in the last two years that I have been able to plow, for example, as I desired. The results to date therefore have been very small compared to what I expect to accomplish, although the improvement has been sufficent to be encouraging.

"I am a firm believer in early and deep plowing. This means dry plowing, for which I find a large, track-type tractor the only satisfactory power. I am plowing now to a depth of eight to nine inches. The first year I had the tractor I did not go down more than six to seven, as the land had been plowed shallow before and I do not think it wise to turn up too much new soil at one time. I start plowing in September. The past season, because of the high cost of labor, I disced in some barley without plowing, but do not intend ever to do so again, as the yield was very poor.

### PREPARATION OF SEED BED

"If rains come so as to make it possible, I allow the weed seed that may be in the ground to sprout, and then disc thoroughly. In preparing my seedbed I use double disc and spike-tooth harrows, and work to get the soil finely pulverized.

"I drill in all my grain, as I find that the increased yield and the amount of seed saved more than pay for the extra time it takes. I try to have my wheat all in by January first, and barley by February first at latest, though I had rather wait a month longer than put my seed into rough, cloddy land.

"Perhaps I am a little over-particular as to seed, never using my own, but buying the best from reliable firms each year. I have been raising Early Baart wheat only the past three years.

"I find that I get better yields of higher quality, and when one figures the expense of recleaning, which includes shipping both ways, involved in using one's own seed, and the fact that one loses also the use of the money represented by the grain held for seed for about six months, the difference in cost is not so very great. Early Baart grows rather soft, when kept in this country a year, while the seed from the North is hard and firm. My Early Baart always has been graded "A-1."

### SEED GRAIN TREATED

"I dip both wheat and barley seed in formaldehyde as protection against smut just before planting. One year when I did not dip part of the seed I learned how well it pays to do so. Owing to the fact that this is more of a fruit than a grain district, we have no grain elevator facilities, and I am forced to use sacks, although I much prefer the bulk method of handling grain.

"I have my own binder and small thresher, which I run with a small tractor. I find that it 'pays big' to cut and thresh grain when it is ready, and not wait on the other fellow.

"In addition to getting all the grain you grow, you do not have to go to the big expense of shocking and stacking bundles. At the time I bought my implements, the small 'combine' was still an experiment, at least in the West. I still believe a binder is more satisfactory where you have land that is at all sloping or uneven. Also the straw is saved by binding, which is an item of considerable importance, whether baled for sale or stacked for the cattle for winter feed.

"The ranch is so situated that only parts can be irrigated, and these are in alfalfa which lasts eight to ten years. Indian corn is not a success here. I raise such cultivated crops as milo maize, which makes fine feed for little pigs and sells readily for chicken feed, and have raised blackeye beans, rather for soil improvement than for direct profit. I depend upon deep, early plowing and summer fallowing

(Continued on Page 17)

*"This portrait was taken when I graduated from college and had the weight of the world upon my shoulders, which accounts for the serious expression," writes Mr. Meiners.*

**HOW I FEED AND CARE FOR MY HOGS**

**MR. MEINERS has prepared for ORCHARD and FARM a very helpful article on the methods that have brought him success with his animals. It will be published in the January number. Don't miss this interesting contribution from a practical breeder. He tells just how he feeds and handles breeding stock, pigs and market stuff. Coming next month. Watch for it!**

*Carl Meiners holding two of his Hampshire pigs, which were shown with their mother and litter-mates at the fairs this year. Below—The champion boar, "O. U. R. Masterpiece Again," pronounced by impartial judges one of the best specimens of the breed ever developed in the West. (Lower photo by Blackmore.)*

# PRACTICAL POINTERS IN FEW WORDS FOR BUSY FARMERS

[Information concerning any article or plan mentioned on this page, or elsewhere in ORCHARD and FARM, may be obtained by addressing the Editor, 1111 South Broadway, Los Angeles.]

**Storage of Potatoes** — Investigation conducted by the Bureau of Plant Industry shows the temperature best suited to the proper preservation of potatoes ranges from 32 to 45 degrees. Potatoes never should be stored in large piles when they are moist, or covered with damp earth, as they quickly develop injurious heat. If it is necessary to store potatoes when they are wet and dirty, they should be spread out in a thin layer until dry. But potatoes never should be stored at a greater depth than six feet. Exposure to light injures the quality of the potato for food purposes; hence a darkened cellar or storage house is recommended.

**Beef Cattle on the Farm**—As range cattle herds give way to smaller units kept on farms, the farmer derives numerous benefits from the maintenance of beef cattle: (1) It is possible to make greater use of dry roughage produced on the farm, as they consume larger quantities of these feeds than any other stock. (2) Beef cattle can be maintained on rough land unsuitable for crop production; also on low, wet land unsuited for crops or other stock. (3) Beef cattle make more efficient use of the total production of grain and roughage than any other stock. (4) Beef cattle favor a well balanced distribution of labor throughout the year, requiring little attention during summer and fall when field work is heaviest.

**Care of Implements**—A Central California farmer who has a high-pressure water system, makes a practice of washing all implements before they are stored in the shed. The powerful stream from the fire hose removes all mud and dust. The machinery then is allowed to stand in the sun until dry and if the implement is not to be used for some months all metal parts are covered with heavy grease. A can of paint is kept on hand in the implement shed and both wood and metal parts are touched up when necessary. This rancher states he has paid for his shed many times over, as well as for the time spent in caring for the implements, and that they last two or three times as long as those of his neighbor.

**This Month in the Garden**—December is a good time to prepare the ground for early planting. Spade it deep, fertilize and pulverize the soil. When the ground is well filled with water, yet not muddy, plant Windsor beans, turnips, beets, cabbage and cauliflower. For greens, endive, spinach and Swiss chard thrive in winter. Carrots do well, while lettuce and radishes may be grown with success in most sections. This is a good time to set out strawberry, rhubarb, horse-radish and asparagus plants in most parts of the State. Brussels sprouts are a delicious addition to the vegetable diet and may be grown during the winter. Onion sets may be put out this month. Parsley and parsnips may be grown with success, while this is the natural season for peas. Tomato seed for spring transplanting may be sown now. Strangely, most of us do not take full advantage of our California winter climate to grow the vegetables which are frost-resistant and which thrive in cool, wet weather. Perhaps only an Easterner, accustomed to subsisting on canned goods during half of the year really can appreciate the value of a winter garden.

**Snakes as Gopher Getters**—ORCHARD and FARM has received several letters from farmers, urging protection of the common gopher-snake, as one of the best friends of the rancher. Most of us are inclined to kill all snakes on sight, but those who have studied the habits of the gopher snake assert that a few of them on an ordinary farm will rid the place of rodents. One San Joaquin Valley producer is said to keep a number of the snakes in captivity for breeding purposes, the young reptiles being released when domesticated so that they will not leave their "home."

**Marketing Turkeys**—The assertions of Marshall A. Stutsman, as set forth in his turkey article in this number, are supported in part by Harry S. Maddox, State Market Director, in a recent bulletin. Mr. Maddox intimates that turkey packers have attempted to break the market, and advocates that growers who have not marketed all of their birds before Thanksgiving, hold back their young gobblers so that there will be an in-between and after-Christmas demand. Also, it is pointed out, this will tend to increase the demand for hen turkeys during the "rush" season. Reports that heavy shipments are expected from Australia, are said to lack confirmation except in the camps of the packers, according to Mr. Maddox.

**New Wheat Varieties** — Two new wheat varieties, "Defiance" and "Hard Federation" are being grown for seed purposes in Central California this year. Hard Federation was introduced from Australia by the U. S. Plant Gardens at Chico and has been developed and established at the Davis Experiment Farm by Prof. G. H. Hendry. It is said to be of very desirable milling quality. A new variety of Egyptian corn, known as "Yolo Maize" has been developed at the University Farm and has given great promise in trials conducted in the Sutter Basin. It is said to be straight-standing, heavy-yielding, and of large, compact head formation.

**Harvesting Milo Maize**—Milo growers in the Sacramento district are harvesting the grain with rice-binders, to which a screen attachment has been added. The grain will be threshed in much the same fashion as rice.

**Copyrighting Farm Names** — Farm owners desiring greater protection for their farm names, used as trademarks, than is obtainable through State registration, may have the names copyrighted through the United States patent office, Washington. It is required, however, that the name be used as a trade-mark on goods shipped outside the State. Furthermore, it is advisable, although not necessary, that the name be arranged into some distinctive design.

**An Important Bank Ruling**—Recently the Federal Reserve Board ruled that growers' drafts, accepted by marketing associations, should be classed, if the proceeds are to be used for an agricultural purpose, as agricultural paper, eligible for rediscount at Federal Reserve banks. Of this action, Secretary of Agriculture Wallace said, "It is a ruling of importance, and should result in making bank credit more available for farm use."

**Culling the Poultry Pays**—Recently a poultry demonstrator culled a flock of 150 White Leghorn hens. The 70 non-productive hens that were discarded laid two eggs in ten days. The 80 good hens continued to produce the average number of eggs, gathered previous to the culling demonstration. The community is converted to the culling idea and the cull hens are rapidly diminishing their hold on their owner's pocketbooks. Why buy feed for "boarders?"

**Do Not Enter Silo Until Blower is Turned On**—Turn the machine blower on and leave it on for at least two minutes before anyone is permitted to enter a partly-filled silo. Unless this rule is followed, the result is likely to be dead men. Annually fatalities occur among farmers and their helpers as a result of the workmen entering half-filled silos after the deadly carbon monoxide gases have had a chance to accumulate directly above the freshly ensiled corn.

This fall two Illinois farmers were killed and another was rendered seriously ill by silo gases which are almost as dangerous as the poisonous mustard gases used during the recent war. In this instance, one of the farm workmen entered a 50-foot silo which had been half filled the previous day. Some time elapsed and when he did not come out, another of the hands ascended into the silo. Neither reappeared, though the other workers shouted to them repeatedly to come down.

Fearing an accident, the farm owner finally climbed into the silo. He also was immediately overcome by the poisonous fumes and only the fact that others followed him, forced open the extra silo doors and carried him into the open air saved his life. The two other men were suffocated immediately.

Each year, a number of accidents of this kind occur, due largely to carelessness and ignorance of the proper methods of eradicating the dangerous gases. The preventive measures are simple and efficient and, where they are followed, there is no danger.

No workman should ever enter a partly filled silo, after the ensiled corn has had an opportunity to develop poisonous carbon monoxide gases over night, until the machine blower has been started. The fresh air dilutes and scatters the obnoxious gases to the extent that they are rendered harmless. After the blower has been operated for two minutes, it is perfectly safe for the workmen to enter. Another precaution which should be practiced religiously is not to wedge the silo doors into place until they are needed to prevent the waste of ensiled corn. Many farmers follow the practice of placing most of the doors before any great amount of corn is cut and deposited in the silo. This prevents free circulation of air through the silo which, in turn, operates to favor the accumulation of carbon monoxide and other deadly silo gases.

**Power Farming in Hay Harvest**—The practical use of tractor power in hay production is very clearly exemplified in the experience of a hay producer, who furnishes figures on his last season's production.

He states that he cut 870 acres of hay, using tractors exclusively, and mowers with 10 foot cutting bars. The baling also was done by using the tractor for belt power.

"One man operating a tractor-drawn mower with a 10 foot cutting bar," says Mr. Osborn, "will cut as much hay in one day as four men, four mowers and eight horses will cut, besides doing it better. The weight of the long cutter bar keeps it from bobbing up and down so much; therefore, it cuts closer to the ground, which means a large tonnage gain as the weight of the hay is at the stem and not so much at the top.

"We find the tractor especially advantageous in harvesting marsh hay. The marsh is the hardest place on earth to put a horse for he has to be handled with great care; the heat usually is excessive during the day and frequent stops must be made for water and rest, whereas the tractor travels faster and there are no stops until the day's work is done."

**Placing Straw in a Large Barn**—Many farmers who have a tractor and separator for doing their own threshing will find this hint valuable in distributing straw in a large barn.

The stacker pipe is almost always too short to carry the straw to the far end of the barns. This pipe may be extended by the use of a canvas or muslin tube, the end of which is fitted with a light hoop to make it easy to handle. One man at the hoop end of the tube can manage it very readily and distribute the straw to all parts of the barn, thus saving work with forks.

**Figuring the Capacity of a Silo**—For the information of those desiring to know how to compute the capacity of a silo, the California Department of Agriculture gives the following method:

Find the diameter of the silo in feet and divide it by 2. This gives the radius, or distance from center to rim. Then multiply the radius by itself. This product is multiplied by 3.1416 and the product of this multiplication by the height of the silo, giving the number of cubic feet.

Since the cubic foot of ordinary silage weighs on an average 35 pounds, multiply the number of cubic feet in the silo by 35 and the result will be the number of pounds of silage the silo will hold. Having determined the number of pounds, this may be reduced to tons by dividing the number of pounds by 2000.

**The Purebred Surely Pays**—In the sheep flock the purebred sire is a money maker. In one experiment the lambs from a purebred ram brought 63 per cent more money than lambs of the same age fed in the same way but sired by a scrub. The lambs from the purebred ram weighed more at three months of age than the lambs sired by the inferior ram at four months of age.

## Ben Gonnadooit Says

*Sometimes things that appear to be misfortunes is really blessin's in disguise. F'rexample: Th' fence-posts around my poultry-yard was mostly rotted off at th' ground, and not havin' been able t' fix 'em proper, I jest braced 'em with poles. It looked like a misfortune that we had to go on with such a tough-lookin' layout, but I didn't see my way clear t' buy new posts, especially when th' lumber yard had already attached my ten turkeys on account of a unpaid bill.*

*This wa'n't so bad in itself, but it began t' look like we wouldn't have no turkey ourselves fer Thanksgivin' dinner. Then suddenly along come a wind-storm which blew down part of the fence. A big corner post landed right on a fat gobbler an' killed him outright.*

*Of course, when th' sheriff come t' count th' birds, we was one short, but I showed him how th' unavoidable accident had happened and he agreed it wa'n't practical t' tote off th' dead bird, so he let me keep it, and we had Thanksgivin' turkey after all. Which proves two things I have always contended; thet it don't pay t' be too parti'lar, and that they is a Divine Providence that watches over us.—BEN GONNADOOIT.*

# Weldon--- Helpful Suggestions Based Upon Observation, Study and Experience

By George P. Weldon
CONTRIBUTING HORTICULTURAL EDITOR OF ORCHARD AND FARM
POMOLOGIST, CHAFFEY JUNIOR COLLEGE OF AGRICULTURE

## How to Start the Vineyard From Cuttings

THE grape is one of those plants which can be grown readily from cuttings, and grafting or budding is not necessary except in cases where it is desirable to use a certain root stock to resist the attack of the grape plant louse, phylloxera, or perhaps for some other good reason. Ordinarily, however, cuttings from the canes are used in starting the new vines. The process, which is simple, may be outlined as follows:

George P. Weldon

1.—Secure cuttings when the vines are being pruned in January or any time during the dormant season.

2.—Choose only those canes which are mature and well hardened and which have strong, thrifty buds.

3.—Be sure that the variety from which the cuttings are being taken is known. Mixtures of varieties in the vineyard may occur through inattention to this important point.

4.—Make the cuttings eighteen inches long, and for convenience tie them with twine or wire into bunches of 100 each.

5.—Do not allow the prunings to be on the ground for any length of time before the cuttings are made, nor the cuttings after they have been tied in bundles.

6.—Dig a trench sufficiently large to accommodate the number of cuttings that are to be rooted. These may be laid in rows or placed on end (upside down) in the trench and should be covered completely with about four inches of soil.

### INVERTING THE CUTTINGS

Inverting the cuttings is a practice which has been recommended by the United States Department of Agriculture and which has been followed by some in California, to induce the roots to start from the cut end before the buds near the top become active. The surface warmth, while it will affect the root growth, will not have as great an effect upon the tops deeper in the soil. Yet this practice, while theoretically sound, is not regarded as necessary by some of our successful vine propagators.

7.—While covered in the soil (which must not be a heavy clay, but sand or at least a sandy loam) the cuttings must be kept moist. If the rains are heavy and regular, irrigation may be unnecessary; if not, water must be applied. Cuttings must never be allowed to dry out from the time of making until well rooted.

### TIME OF PLANTING

8.—When growth of trees and other plants has become well started in the spring an examination of the cuttings will reveal the presence of swellings and sometimes, but not always, short roots from the nodes, and possibly also from the cut end, where callous has formed. They are then ready for planting.

9.—After carefully laying out the tract to be set to vineyard, the cuttings are planted in a twelve-inch hole made with a post bar or other convenient tool. Tamping of soil about the cut end of cutting is accomplished with a sharp-pointed stick and is absolutely essential to growth, as an air pocket at the base of cutting will cause it to dry out and die.

10.—One bud above ground is sufficient though sometimes two are left.

11.—Apply water frequently, as no cuttings will root well except where the soil is kept rather wet.

### PROTECTION OF CUTTINGS

12.—If the vineyard is to be planted where rabbits are destructive it may be better to root the cuttings in a nursery, where a great many can be grown in a small space, and where, if necessary, they may be easily and cheaply protected by means of a rabbit tight fence. Rooted cuttings grow so fast after being set in the vineyard that they do not suffer to nearly as great an extent from rabbit attack as do unrooted cuttings.

If these instructions are followed carefully there should be little trouble on the part of any one who attempts to grow vines from cuttings. The quickness with which a vine under favorable conditions will begin bearing is almost unbelievable. Unrooted cuttings of one variety that the writer put in the ground on April first of this year bore fine, large bunches of well ripened grapes five months later.

## Some Pointers on Rabbit Control

THROUGHOUT most of the State of California the rabbit pest may be found doing injury to various crops, and not the least of its damage occurs in the orchard, where young trees often are killed from girdling.

The worst offender is the jackrabbit, as he can reach higher up on the trunk of the tree and is particularly fond of tender bark and new, succulent growth. Orchards which are near brush lands suffer most, as the rabbits can hide in the brush during the day and at night do their feeding in the orchard.

Not infrequently jackrabbits will strip the entire amount of new growth as it starts from the trunk of the young tree during the first season in an orchard. On account of this fact it becomes necessary to head the trees higher than is desirable in order that growth may start sufficiently high so that the rabbits cannot reach it. Young pear trees headed from eighteen to twenty inches high last spring were found later to be stripped of all new growth right to the top, and it was only through prompt action in applying yucca protectors that they were saved.

### PROTECTION FIRST

Nothing is better to protect young trees than a rabbit-tight fence. If the expense of such a fence seems to be too great, protection of trees by means of woven wire cylinders, yucca or other protectors is good. In the case of grape cuttings, rooted or unrooted, this is impractical and the only protection that one can fall back upon is the killing of the rabbits with poison.

In some recent work done in the orchard by the Chaffey Junior College of Agriculture carrots and barley treated with strychnine and placed where the rabbits feed resulted in the death of an occasional rabbit, but nothing has brought results like watermelon.

### WATERMELON KILLS 'EM

It is a well known fact that rabbits are fond of melon; half of a watermelon treated with strychnine and placed in the orchard or vineyard where they are feeding will be consumed readily.

The accompanying photograph is of some rabbits which were picked up within a few yards of half a melon which had smeared over the surface with a knife blade the strychnine alkaloid and saccharin mixture which is sold by the County Horticultural Commissioners of the State as a part of their work in the control of rodents. Twenty-one were found dead from the effect of this poison in one week!

Watermelon season, unfortunately, doesn't last long enough for this method to be valuable at all times of the year. However, while melons may be procured it is thoroughly effective, and any one troubled with the jackrabbit pest is justified in giving it a trial.

*Too Much "Jack"*

*More than 20 of these big fellows were picked up within a few feet of the poisoned watermelon described by Mr. Weldon. Have you tried this effective method of protecting your trees and crops?*

*Matured in Five Months From Planting*

*Luscious grapes from cuttings which quickly developed roots and which matured fruit within five months from planting. On this page Mr. Weldon tells just how to handle cuttings for maximum results. Twelve simple rules.*

## Alfalfa Weevil

ORCHARD AND FARM repeatedly has emphasized the importance of the alfalfa weevil menace. That there is reason for alarm, and that the papers are justified in using much material to educate the farmer regarding the danger in having this pest introduced into California, may be appreciated when one becomes familiar with the facts regarding its occurrence in the infested regions of other States.

It was about 1904 or 1905, that this pest first was discovered in Utah near Salt Lake City. Since that time it has become generally distributed throughout that State and also has spread to the surrounding States of Idaho, Wyoming, Colorado, Nevada and Oregon. This spread, while not very rapid, indicates that alfalfa regions everywhere in time will become infested, and as they do, one more serious pest is added to that already long list which the farmer has to deal with.

### PERSONAL OBSERVATIONS

The writer speaks from personal observations of the pest in the alfalfa fields of Utah when the statement is made that it is exceedingly serious. In fact, there are few pests more serious than certain species of weevils, and in the case of this one which devours the leaves and stems of the alfalfa, the injury may be severe enough to destroy a crop of alfalfa so that it is scarcely worth cutting!

In Utah and others of the Rocky Mountain States there are seldom more than three cuttings of alfalfa in a season, and the first and second are the heaviest. When the weevil first began its ravages the first cutting was practically destroyed, the second was badly injured, and the production from the three cuttings often less than the first cutting should have made. In recent years certain methods of control have reduced the injury, but not

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# Thirty Years of Co-operation

## Article 1 — How Co-operation Saved an Industry. Present Form of Organization, California Prune and Apricot Growers' Association

### *United, We Stand Pat; Divided, We Fall Flat*

***WHEN the citrus growers of this State, nearly 30 years ago, fighting with their backs to the wall and facing almost certain defeat, organized the first co-operative marketing exchange, they started what has since become the most powerful movement in the annals of agriculture.***

***Bitter lessons have been learned, appalling difficulties overcome, and ways and means invented and improved. Naturally, development has been along different lines in the case of different products.***

***It is with the purpose of summarizing, briefly, the experience and accomplishments of the different associations, that ORCHARD and FARM commences with this number a series of boiled-down articles designed to give a "bird's-eye view" of the entire situation in this State.***

***These articles will enable the producers engaged in one line of production to study the methods of those in another; they will assist those not yet organized by pointing out the mistakes and methods of older associations. They will constitute an authentic, to-the-point history of California co-operative marketing, that may be read with interest and profit by every subscriber. This opening article deals with one of the younger organizations—the Prune and Apricot Growers' Association, formed in 1917.—THE EDITOR.***

THE Co-Operative Marketing Association of the prune and apricot growers, like other California organizations, was born of necessity.

Almost from the time these California producers began to sell their fruit commercially, the necessity for some kind of a co-operative organization of producers has been recognized. The growers chafed for years under the suspicion that they were not being paid a fair amount of the profit being made on the fruit which they grew.

As the industry developed, this suspicion became a certainty. Impatience grew into irritation and finally into a perpetual state of warfare between the growers and the business interests who bought the fruit of the growers and distributed it in the markets of the world, presumably at a tremendous profit to themselves.

California has long been the greatest fruit-producing section in the world and the prune growers were not the only ones who felt they were being robbed of a fair share of the profit made through the sale of their crops.

Several attempts were made nearly thirty years ago to organize growers' co-operative marketing associations. Most of them failed, but the orange and lemon growers of Southern California were able to keep their infant organization alive, and gradually developed it into the first successful co-operative marketing association of the State.

#### EARLY ORGANIZATION EFFORTS

A decade following the rise of the California Fruit Growers' Exchange, by which name the citrus association became known, the raisin growers, by a herculean effort, established a co-operative selling association in their industry. Stumbling on the heels of the raisin growers came the peach, the bean, the almond and the walnut producers with their co-operative marketing associations.

With such examples before them, the prune and apricot growers, fighting desperately with their backs to the wall, succeeded, after a ten months' campaign, in organizing a growers' co-operative association in their industry in spite of an unceasing fight made against them by the business interests whose profits were threatened.

The California Prune and Apricot Growers, Inc., came into existence on May 1, 1917, with the announcement that it represented 6000 individual growers of the State, who owned at least 75 per cent of the prune and apricot acreage of California.

#### A TRIUMPHANT RECORD

Today, fifty-four months after its organization, this association boasts a membership of 10,000, representing close to 80 per cent of the prune and apricot acreage in the State.

All contracts between the association and its grower members will expire with the selling of this year's prune and apricot crops. Last spring, therefore, the association conducted a "sign up campaign" to obtain new contracts, which would permit a reorganization of the association and would bind the growers to deliver 100 per cent of their crops to the association for a period of seven years.

The enemies of the association thought they saw in this "sign-up campaign" their chance to smash, once and for all, at least one of these "obstreperous" growers' organizations which kept them from making thousands of dollars of profit each year in the handling of the fruit crops.

Every possible means was taken to keep the growers from signing new contracts. Rumors, reports, insinuations and charges of every kind and description were hurled at the association and its management, to undermine the confidence of the growers in co-operative selling and to destroy the association by keeping it from signing 75 per cent of the prune and apricot acreage of the State, which, by the terms of the contracts, it had to have in order to proceed with its reorganization.

So bitterly was the campaign waged that it was not until the closing hours of the last day that the association obtained the prune acreage required. And so close was the apricot "sign-up" to the figure necessary that it was not known for several days whether or not the apricot growers had pledged sufficient acreage to keep them in the reorganized association.

The California Prune and Apricot Growers, Inc., as organized today, is purely a non-profit co-operative marketing association, consisting of 11,000 California prune and apricot growers

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These Photographs Published by Courtesy California Prune and Apricot Growers, Inc.

*"Sunsweet"—The Name That Changed the Social Status of the Prune*

*California has some 160,000 acres of prune orchards, extending from Shasta County on the north to Riverside County on the south, representing an investment by the fruit growers of more than $225,000,000. Members of the California Prune and Apricot Growers, Inc., own 80 per cent of this acreage.*

*Insert—the girls are picking over fruit in order to make sure that only the best is packed under the Sunsweet brand. Every tray is "culled" by hand and all undesirable fruit removed.*

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THE RED TOP does all you can ask of a fence post. It does not burn, rot, buckle or break. Holds its place and lasts for years. And it's guaranteed.

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**Cured His Rupture**

I was badly ruptured while lifting a trunk several years ago. Doctors said my only hope of cure was an operation. Trusses did me no good. Finally I got hold of something that quickly and completely cured me. Years have passed and the rupture has never returned, although I am doing hard work as a carpenter. There was no operation, no lost time, no trouble. I have nothing to sell, but will give full information about how you may find a complete cure without operation, if you write to me, Eugene M. Pullen, Carpenter, 12H Marcellus Avenue, Manasquan, N. J. Better cut out this notice and show it to any others who are ruptured—you may save a life or at least stop the misery of rupture and the worry and danger of an operation.

# The LITTLE OLD LADY in BLACK

A CHRISTMAS STORY

by ALBERT J. MASON

Illustrated by George Grant

"IF it gets any wetter, we'll have to begin constructin' an ark." Pudgy "Doctor" Simmons paused in the act of polishing the soda fountain and peered over his steel-rimmed glasses through the streaming window.

"It's a good thing for the kiddies old Santa drives reindeer," punned the only other occupant of the store, shamelessly. "He may need a boat himself before morning. Say, isn't Jupe Pluvius giving us the devil?"

As he rose from his stool, the young man towered above the little druggist. He raked a handful of change from the counter, helped himself to matches from an open box and then, noticing a glass jar labeled, "Salvation Army," unhesitatingly dropped all the money into it.

"Well, guess I'll take the plunge." His ruddy face was more than a match for the somberness of his water-logged felt hat. He wore heavy boots, laced to the knees; a gray flannel shirt showed above the collar of his raincoat.

"Good night, Doc. Merry Christmas," he cried, ducking through sheets of water that rolled from the edge of the sagging awning. The usually brilliant electric signs and store fronts of Broad street were but uncertain splotches of light. Here and there a few pedestrians huddled under shelter or splashed resignedly homeward.

With head bent, the young man made a run for the opposite corner. In his haste, he nearly collided with a little bonneted woman in a long black cloak, who slipped, almost fell and dropped the bulky bag she carried. He caught her arm, steadied her, apologized, rescued the bag and was gone again almost before she had recovered from her surprise.

Crossing the street in a few well-calculated jumps, he fairly dove into a large sedan parked at the curb. Unbuttoning his coat, he withdrew several parcels which he deposited with others in the rear of the car. Then he switched on the headlights and opened the door for a hasty look at the wheels. "Tires all right; chains all right. Hello, there's that poor old lady still standing there. I'll bet a dollar she missed the bus."

Silhouetted by the hopefully-gleaming incandescents of a deserted motion-picture theater, she made a pathetic picture. One silk-gloved hand held aloft an inadequate parasol; the other clutched the heavy carryall bag, which she was attempting unsuccessfully to shield from the downpour. She was peering anxiously up the street.

The young man swung the heavy car around. Expertly he slid up to the opposite curb and left the engine throbbing as he plunged out again into the rain.

"I beg your pardon." He raised his hat.

At first startled at the sudden reappearance of this young giant before her, the object of his gallantry seemed reassured by the friendly flash of his smile. "Are you waiting for the bus, ma'm?"

"Y-yes," she replied hesitatingly, "the Dellview stage. It must be very late. Why, I've been standing here nearly thirty minutes." He could not see her face behind its heavy, black veil, but in his thoughts he matched it with the sweetness of her voice.

Before she could protest, her bag was appropriated and she was fairly lifted into the car. "But—but—," she began.

"No buts about it," he smiled. "Why, that bus may be floating down the river by now. Going that way myself. [illegible] you home. Front seat's [illegible] d sitting behind? All [illegible]"

"[illegible] but I feel it is an imposition," [illegible] protested. He slammed the heavy [illegible] and again took his place behind [illegible] wheel—t[illegible]n, as though aware of [illegible] paused with foot on [illegible] lever.

"[illegible] m[illegible] impoliteness, please. I was only thinking of getting you in out of that rain as quickly as possible. You're not afraid to go with me?"

"Oh, no. And I'm very grateful. But I am inconveniencing you. Why, I live far out, near Dellview. I'm afraid it is too much to ask."

"Ho-ho! What's twenty miles to this old mud-eater! And anyway, I like to drive on a rainy night. Don't worry if we skid a little. By the way, I am Ralph Hamilton. I have recently come to the Circle Bar Rancho west of town. I don't know many people here yet."

"And I-I am—Mrs. Jones," she replied, after some hesitation.

He switched on the spot-light, raised the windshield slightly and peered out from under it. The street seemed a succession of miniature lakes. Soon however, they were rolling towards the open country. Now and then a wheel dropped into a hidden hole, and the big car gave a sickening lurch, but always it roared ahead, throwing up sprays of water and mud.

"Gee, isn't this great!" cried the pilot enthusiastically.

"Are you sure it's quite safe? Do you think we should go on?" There was a little quaver in her voice.

"Not a bit of danger. Now, don't worry. I'll have you home in a jiffy. Lord, how it pours."

His passenger gasped as the wheels see-sawed back and forth and the driver, with a quick twist, pulled into the road again.

"Slippery, all right," he muttered. "Stretch of dirt road here. Have to take it in low." The gears clashed, then whined in mounting crescendo. The car plunged and slipped. Steam hissed from the radiator-cap.

"There. We're over the worst. Hello! Now, what? LOOK OUT!"

She suppressed a scream as he jerked the emergency brake, throwing her violently forward. The car swerved sidewise as it came to an uncertain halt. Before she could speak he had opened the door and sprung out.

Soon his dripping shoulders appeared again. "Gee! Stopped just in time. Little bridge washed out here. 'S'all right, though. We'll get around that." He was gone again without having heard her anxious protest.

She could hear the radiator steaming. It was snug and warm within, but the rain still beat with steady drum upon the top, and nothing was discernible in the outer darkness but the dim outline of a row of eucalyptus trees.

She began to be genuinely afraid. What manner of adventure was this on which she had embarked? Or had she really embarked at all? She did not recall having been consulted, and found herself a bit piqued by her own passiveness towards this impulsive and overbearing young chap. The prospect of spending the night with the car fast in a mud-hole appalled her. She decided to be a bit severe with him. Yes, she would insist—.

He appeared again as suddenly as he had left. His profile would quicken the heart of almost any young girl, she thought. He wiped the water from his face and scraped his boots upon the step.

"My dear boy," she cried. "You'll catch pneumonia! Hadn't we better—"

"Rotten luck, ma'am. Awfully sorry on your account. But we can get through now. Well, here goes!"

"But the bridge! You said the bridge was out!"

"Steady. Hold tight. Steady now. There. We're over that!"

"Heavens, what are you doing?"

"We crossed that gulley on two ten-inch planks," he replied. "Not risky, though, I had 'em braced."

New doubts assailed her. Was this young fellow mad? Or was he a reckless dare-devil who would risk other lives with his own? But it was too late to turn back. She drew her wrap more closely about her and clung tightly to the arm-strap. What next?

The driver was whistling softly to himself. But his face appeared a bit more sober. And, indeed, the night was not to be without its further adventures.

A FEW minutes' ride brought them to a wayside garage, where insistent "honking" called forth a peevish attendant. The tank replenished, the young man brought forth a well-filled bill-fold, from which he extracted a twenty-dollar note. The garage man went inside for change. Ralph made a hasty inspection of his tire-chains, and rubbed the mud from the head-lamps.

"I say, mister."

Unseen, a bedraggled individual had approached from the shadow of the building. Whirling about at the unexpected salutation, Hamilton confronted a shuffling, unshaven man with tattered overcoat and nondescript hat. "Hobo," was the thought that flashed through his mind.

The new arrival looked on as the attendant counted out the change, then continued in his ingratiating manner:

"C'd I ride with yu, Mister? I got to reach Dellview t'night. Sick mother. Gotta see her. C'd I go in with yu?" His eyes shifted and refused to meet those of the younger man. He drew his tattered coat about him and gave forth a hollow cough.

Ralph was about to offer a curt refusal when a black bonnet appeared from the interior of the sedan and a soft feminine voice pleaded, "Oh, do let him ride, Mr. Hamilton. It is such a terrible night. The poor man seems to be ill."

"All right. Get in. No, not there. You'll ride in front with me."

But the front seat already was occupied. His original passenger had moved. And so the tattered stranger immediately gave himself to luxurious enjoyment of the soft cushions of the rear compartment.

Once more they were under way, the rain still falling steadily and the driver feeling his way cautiously through the muddy maizes of a rough detour.

He no longer whistled. For some reason he appeared restless. Now and then he glanced at his companion, but her face was almost invisible, and she appeared to be engrossed in watching the illuminated path ahead of them.

Once she ventured to remark: "I believe we're over the bad road now." The driver did not answer and she lapsed into apparently injured silence. Busy with her thoughts she was totally unprepared for what occurred.

Suddenly the young man threw himself against her and there was a crash of glass. As he jammed down the brake pedal, the car skidded and turned completely around, bringing up at a dangerous angle in the ditch beside the road. She was thrown violently against the windshield and found herself, almost breathless, in a huddled heap upon the floor.

Another crash, and she became aware that her escort was struggling with the man in the rear. Their rasping breath came in quick gasps. She heard ugly curses. His mud-caked boots scraped her shoulder as he threw himself over the back of the seat. Another window was shattered. She screamed

(Continued on Page 18)

*Their rasping breath came in quick gasps . . . She heard ugly curses . . . Another window was shattered.*

# My Message to Farm Women

*PRUDENCE PENNY, famous writer on subjects close to the hearts of women, once lived on a ranch, and knows of the farm woman's problems. If her article antagonizes any of our male readers, we can say, "Only the truth hurts." But we believe any fair-minded husband will agree that she is right!—Editor.*

By Prudence Penny

WRITTEN ESPECIALLY FOR ORCHARD AND FARM

RECENTLY I have had a number of opportunities to meet and talk with farm women from many different communities.

Prudence Penny

The one comparison that stands out in my memory, more than anything else is this: Men have tractors to plow their fields, but most of the women wash all the soiled clothing by hand. Men have gasoline or electric engines to run their machinery; yet many farm women sew and iron and churn in the old-fashioned manner. Men constantly are adding new appliances to the farm equipment; women have the old coal or oil ranges, no new appliances, and rarely fircless cookers. Steam pressure cookers are quite out of the ordinary in country homes and as for vacuum cleaners or electrical inventions—oh dear me—they are not necessary! "Women are supposed to work on a ranch." At least, this is the attitude of a great many men.

Once upon a time I lived on a ranch. I learned what it meant to do without electricity, to wash and iron, to dust and sweep, to bake and sew with the same sort of utensils that our grandmothers used.

Never again will I do this.

It is entirely unnecessary.

Of course if there is no electricity near, or a private power plant is temporarily out of the question, that bars all electrical devices, but—there are gasoline engines to attach to washing machines, there are gasoline irons, to do away with ironing in the heated kitchen, and there are sweepers that will take up the dirt and save the back-breaking broom methods, even though they do not quite come up to the electric cleaners.

### DISHWASHING MACHINES

As for that most thankless household task—I know of a dishwasher tried out in my own home that will do the work in a quarter of the time required for hand work and with much less labor, costing only eight dollars, and fitting into the sink—but there must be hot water faucets.

That brings me to another point. There are so few ranches equipped with hot water heaters, and of all places in the world, this is one where they are needed. Worse than that, there are still farms where women—YES THE WOMEN—must carry water into the house! If it is utterly impossible for the water to be piped into the kitchen, or at least on the back porch, then let the men carry it!

The women of today are not constituted as were our grandmothers or even our mothers; they need more help and different homes. They must have time to keep up with their children, and it breaks my heart to see some of them, broken and bent and wearied before they are even middle-aged.

### THE WOMAN'S WORK

Why it is, I do not know, but the average woman on the average farm is expected to do so much more work than the woman in the city. Not only has she the housework, the cooking, washing and ironing, but frequently also the poultry to care for, the milk house to be cleaned, the butter to be made and so many things in the garden that rightfully belong to the masculine worker. Of course the men have hard work and long hours, but nevertheless they could, if they would, lighten the woman's end of the labor ever so much.

I do not mean that all men are selfish, indeed no, just that so many are thoughtless and do not systematize their farm work as do the men in the offices or manufacturing plants.

But we are talking of woman's work, not man's, and supposing I tell you something I have tried and found successful.

When I first went on a ranch I was fascinated with the out-of-doors of it. I loved the freedom and the quiet, but I soon found that in order to enjoy it I must plan accordingly. Consequently I commenced systematizing the home just the same as I had been accustomed to systematizing my work in an office.

What one woman can do another can do.

### WHAT SYSTEM ACCOMPLISHES

Supposing, for instance, you have chickens to feed, and your housework

to manage, a kiddie to bathe and dress perhaps—and all the duties connected with the average country home. If you allow yourself a certain amount of time for each task—and keep within your time limit—you are going to accomplish so much more than if you do your work one way this week and another way next week, and never have a plan to work on.

I cannot plan for you, for each of us has special problems to meet and must make her own arrangements, but I do know that if you plan all your work on paper, then hang your schedule up where you can watch it, and stick to the schedule, you will have more time than you can imagine by just thinking about it.

One thing I would stress: Concentrate upon your work.

If, for instance, you start cleaning the bedrooms, and happen to pick up a new magazine do not stop to read a paragraph, or you will find 5 or 10 or 15 minutes slipping past with nothing to show for it. If you commence the ironing, stick to it through the hour allotted to the task, then when through, rest.

In other words, learn to play when you play and work when you work, and gradually you will get the same joy from your work that you get from your rest, for no matter what the task, the "joy of accomplishment" is satisfying.

### EFFICIENCY IN HOUSEWORK

Efficiency is a bad word to use these days; so many of us have heard of it and worked around it and plumped right into it so often with disastrous results that we are rather like the new colt; we "shy off."

Efficiency to me is doing the greatest amount of work in the shortest possible time with the least fatigue and most satisfaction to all concerned. In the words of my grandmother, it is "making your head work for your heels," or in our more modern terms—just plain common sense and planning ahead.

To manage a home efficiently, no matter if it be in a city or on a ranch, one must plan in advance. One must be adaptable, always ready to accommodate oneself to circumstances. One must learn contentment.

Contentment means not worrying when the house is not just right, but never losing the hope that one of these days it will be made right. It means making the best of things and facing each day with a smile.

I can almost hear some women say, "Well if she had my problems"—but dear friends, I have my own. I know that you can do what I have done and am doing. Women are women and they have great burdens to bear but they can exercise great privileges.

### ONE HOME THAT I KNOW

I know a certain country home situated in the midst of broad acres, and it IS a dream home. Years and years the owners labored, waiting until they could build just what they wanted. It is a large place, with beautiful living room, equally attractive dining room, delightful and inviting breakfast room, and a wonderful kitchen, all enameled and with built-in cabinets. There is a screened back porch large enough for the washing machine and dish washer, while the ironing machine is in a tiny room opening off the back porch, used also for storing the soiled clothing, and containing all the wash day supplies.

Upstairs there is a sewing room, with an electric sewing machine and another small ironing board for pressing. The bedrooms open into a large central hall which has a big window and a window seat piled with cushions. Here is a writing table, and there are convenient electric lights and a low couch for the "drop-down-and-rest" sitting room. The bath is the last word in sanitation, and over the entire lovely place hovers an air of peace and homeiness that nothing possibly could describe.

### AND IN CONTRAST

Then I think of another home where I have been—or I think I might better call it a house. The water is pumped by gasoline engine, and is PIPED TO THE COW BARNS, but the kitchen door is at least 50 feet from the pump and every drop of water used in that house for washing or bathing must be carried!

There is no electricity to be had, but the gasoline motor turns the farm machinery and there is a splendid big tractor. The wife washes with the old tub and wash board, irons with

the heavy sad irons, and sews with the old type treadle machine, and it is no wonder that she is draggled and weary. The farm implements are "the last word"; the stables and storehouses are in good repair, but the house looks as though it had stood since the days of forty-nine. The rugs are worn and the furniture scratched, while only half the windows boast curtains.

There is no excuse for this.

The wife on the farm is the partner in the business. Her office and work shop is the home. She should have just as many conveniences as has her husband, for her work is just as heavy, heavier sometimes, especially when there are little ones.

I have not overdrawn these pictures. I have been in both homes.

### ON BEING WELL-GROOMED

Realizing that many farm women

(Continued on Page 27)

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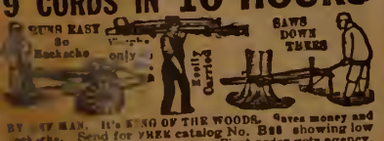


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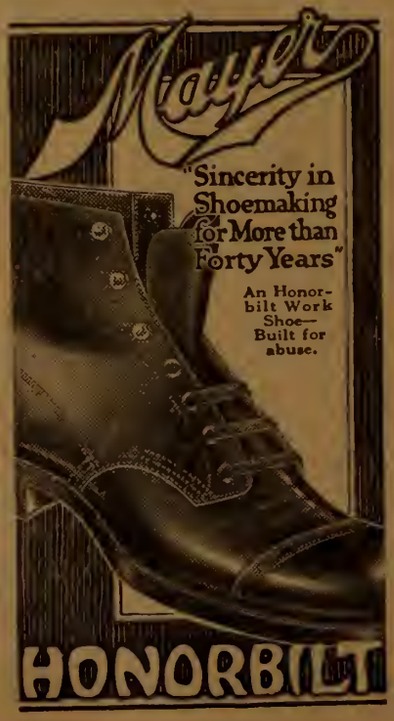

## Agricultural Regeneration a Painful Process

CERTAIN interests are just beginning to realize that the farmers of the nation are awake and mean business; in fact, the agriculturists "put over" an ambitious program before this realization came.

Now comes a concerted howl from railroad and manufacturing circles, together with "hearings" and investigations and "exposures" galore.

Congressman McFadden recently issued a scathing denunciation of the agricultural "bloc," that portion of the Congress which is pledged to see that the farmers get a square deal. He accused them of being dominated by the American Farm Bureau Federation (as though this were high treason) and the latter of being dominated by radicals.

He expressed indignation over the high salaries of "paid organizers"; he spoke freely of "bolshevism" and of the "dangerous balance of power."

But these things are to be expected. The only remarkable feature is that the awakening of the farmers has not created a furore before now.

The general public, however, has been educated to regard the food producer as the ultimate goat, an object of pity because he was supposed to be the hardest-working and least-rewarded member of society.

The revolution therefore is bound to be painful if not bloody. Precedent and special privileges "die hard." But the producer of food is going to take some of the things he is entitled to, and the social parasites are going to face the necessity of working for a living. It is inevitable that this should be so; it is right; it is just.

If you must have "investigations," Mr. McFadden, why not look into some of the manufacturing monopolies and financial pirate strongholds that have flourished at the expense of the farmer?

Organized agriculture asks no special privileges that are not its just right and due; only a fair field in which to fight its own battles!

## Why Organization is Justified

THERE is one great argument that all farmers may use legitimately and effectively to meet criticism of present marketing and organization activities. It is this: The country now is entering upon the third stage of development. The first was that in which new land was exploited and soil wealth mined.

The second came when land prices began to advance. Consequently the farmer was able to provide for his family by realizing profits on land sales and by utilizing the family labor.

Now, however, comes the period when land values are inflated. The only way, therefore, that the farmer can make a good living and interest on his investment without greatly increasing the cost to the consumer, is by following through his products to the market and eliminating waste. This is the situation in a nut shell. Modern methods were developed to meet modern conditions. The non-producer must pay the bills.

## Federal Land Banks Emerge Triumphant

READERS will be glad to know that the Federal Loan System is functioning normally again. For more than a year the ill-timed attack of the private money lenders stopped the sale of Farm Loan bonds. Finally, however, a Supreme Court decision settled the matter of their legality and the wheels were set in motion again.

According to a report made by Charles E. Lobdell, Farm Loan Commissioner, to Senator William S. Kenyon, the banks are in the best possible condition and are able to dispose of bonds to the public at the rate of $150,000,000 a year. They are increasing capital at a rate exceeding $600,000 a month, he shows. The Land Banks have made loans to the amount of nearly $414,000,000 and have taken just one bad debt loss to date, amounting to $200, Mr. Lobdell asserts.

Starting three years ago with a capital of $9,000,000, and no assets, the Federal Land Banks have increased to nearly $27,000,000 capital with a reserve of a million and a half, undivided profits of two and a half millions, and total assets of over four hundred millions.

If the present rate of progress can be maintained for five years, the Federal Land Bank system will be the largest financial institution in the United States, Mr. Lobdell believes. Local farmers desiring to place land loans through Federal Farm Loan Associations, on long time and at low interest, can get information from the director of the Federal Land Bank at Berkeley, California.

# Editorials
Continued

## No Questions Too Big

FROM transportation problems to questions of legislation, the fifty-fourth State Fruit Growers and Farmers' Convention attacked all angles of rural welfare with equal vigor and clarity.

And this convention differed from all previous ones in that there were less resolutions about what OUGHT to be done and more reports of what HAD been done. Almost every delegate had been extremely busy during the past year solving unprecedented problems as they arose, and the accounts of their solutions were interesting and illuminating.

Typical of the new spirit of organized agriculture was the report of Carlyle Thorpe, manager of the Walnut Growers' Association, who pointed out that instead of beseeching the railroads to reduce rates, the association shipped a big consignment of nuts via the motor truck and water route through Los Angeles harbor to Eastern ports. A railroad rate cut followed almost immediately!

Representatives of the farmers' organizations, who had the broadest knowledge of national and world conditions, were present. For example, G. Harold Powell of the California Fruit Growers' Exchange, just returned from a tour which included important market centers of the United States and Canada, gave a helpful and optimistic report on the agricultural outlook. Mr. Powell stated business conditions were much improved throughout the country.

The annual convention of the fruit growers and farmers has become a California institution of first magnitude and importance. No one who attended this year's event in Los Angeles could have failed to receive inspiration and encouragement from the program. And the educational features were even more valuable than heretofore. This is a good time to resolve to take part in next year's convention.

## Good for Nurserymen!

IN organizing and carrying to a successful conclusion the greatest flower and ornamental horticultural exhibition since the days of the P. P. I. E., the nurserymen of California have done a wonderful thing for themselves and for the State.

The recent Los Angeles show, costing more than $60,000, was acclaimed the finest thing of its kind ever seen in California. And the permanent sunken gardens, donated by the Nurserymen's Association to the city of Los Angeles, stand as a lasting memorial to the enterprise and public spirit of its members.

ORCHARD and FARM congratulates the plantsmen and thanks them upon behalf of its thousands of subscribers who came and saw and were entranced.

ORCHARD and FARM

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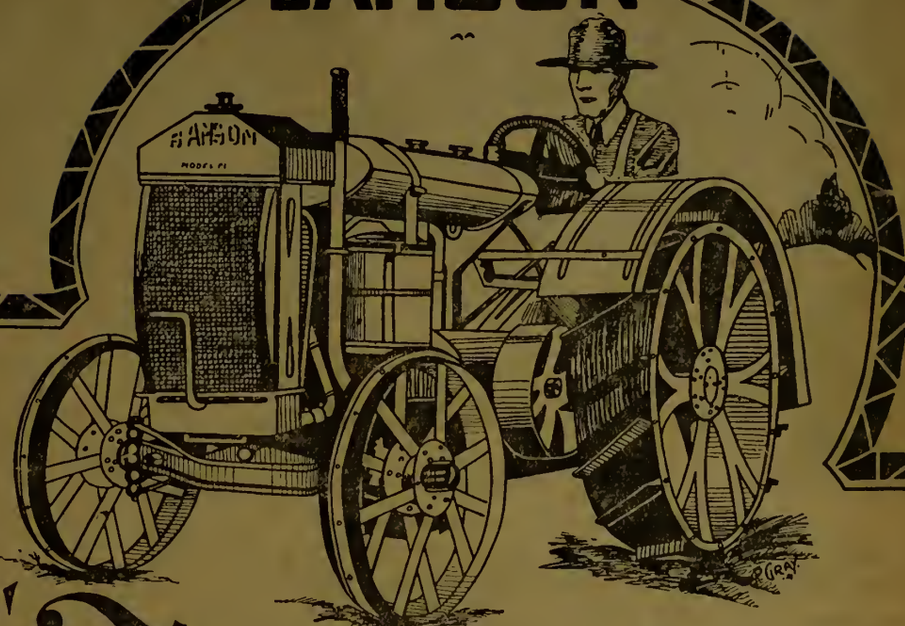


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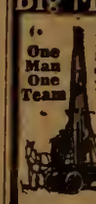


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25 Years of Practical Experience.
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# "BOB" JONES' CORNER

## Little Stories of Farming

By ROBERT E. JONES

Contributing Editor of Orchard and Farm.

**Ideal Harvest Season**—Central California never had a more favorable season for harvest. At this writing, virtually all the grapes have been picked and are on their way East, beans have been threshed and the large percentage of the rice is under cover. Last season thousands of dollars loss was experienced by bean and rice growers because of early rains. Ordinarily the grape harvest continues late in the season, but the demand has been so strong this year that customers would not wait for late grapes. They wanted them right away, and vines have been stripped earlier than usual. Grape "strippings" which used to go to waste, have sold this year at from $75 to $85 a ton. Theoretically, no one knows to what use they are put, but there is a strong suspicion that they go for wine making.

**Grapes Keep Rest of Farm**—Guy Foulkes, a director of the Sacramento County Farm Bureau, and active in the Northern California Milk Producers' Association, tells me of an experience with grapes that demonstrates the great element of chance in agriculture. He has a 400-acre place near Elk Grove. Of this tract, 20 acres is in grapes, mainly the Alicante Bouche variety, which is used for coloring wines and is about the highest-priced wine grape on the market just now. With prohibition coming, Foulkes decided three years ago to take out these grapes. But the scarcity of labor delayed the work, with the result that the vines were saved. "Now this 20-acres of grapes is supporting the rest of the farm," said Foulkes.

**That Man Crocheron**—To take a peep at B. H. Crocheron, Director of Agricultural Extension for the California College of Agriculture, one hardly would judge that his work was with farmers. Rather it might be suspected that he was a member of the French diplomatic corps. However, Crocheron is very much among farmers and is decidedly popular with them. His work of organization for the California Farm Advisor system has been the envy of leaders in many other States. The responsibility for the fact that California has the most efficient farm bureau system in the country is shared, of course, with the high class personnel of the men throughout the State who are in the movement. Crocheron is at his best before an audience, laying down the principles of organization among farmers. The writer recalls an address he made to a gathering of farmers at Orland. He so aroused their enthusiasm at his exposition of the ideals of the Farm Bureau that the close of his talk brought a spontaneous outburst of enthusiasm. All speakers are applauded, but one seldom witnesses a genuine, enthusiastic outburst. Crocheron's farm bureau tours each year have assisted mightily in spreading the best ideas in farming to all parts of California.

**The Canal Route**—Running through an old volume of reports on California Fruit Conventions recently, I glanced over an address by Edward Berwick of Monterey on "The California Fruit Industry and the Nicaragua Canal." If I am not mistaken this address was made at the convention of 1894. Berwick pointed out that through the building of this canal California fruits would have a new and cheap outlet to Atlantic seaboard markets. It seems sometimes that we move slowly, but, in any event, the fruition of Berwick's dream is seen today. For many tons of fruit and nuts already have gone east by way of the Panama Canal, and California citrus growers are planning to ship on their own steamers oranges, lemons and grape fruit. Shipments that were made this year have proved the practicability of the project.

**New Economic Plants**—"The Ellis Island of the Plant Kingdom" is the name that has been given the United States Plant Introduction Garden at Chico, Butte County. If the reader is not familiar with this institution, it is time that he should know it and use it. This garden is the place where plants and seed from foreign countries are set out in America to be tested for their commercial value to us. Many plants of economic worth have been introduced from the Orient to this country through the Chico gardens. One of the latest of these is Hard Federation Wheat, a milling variety of excellent quality, brought from Australia. After some seed was grown at Chico, the lot was turned over to Professor G. W. Hendry of the University Farm at Davis and he now has distributed some seed to growers so that by next year there will be a sufficient quantity for commercial plantings. A great deal has been accomplished in California during the last few years in improving the quality of our wheat, and it is believed this new introduction will be of exceptional value. J. E. Morrow is superintendent in charge of the Chico station.

**Big Interest on Small Investment**—The year that she made her greatest record, Tilly Alcartra, California's and the world's greatest dairy cow, ate $149.22 worth of feed and produced milk, which at 10 cents a quart, would have sold for $1500. In addition, she gave birth to a calf, and, as you know, that calf sold to a group of Ontario, Canada, breeders for $50,000.

**When He Means "No"**—"How do you know when a man means 'No'?" was the question I put recently to Ben Rhoades of Los Angeles, the famous livestock auctioneer. Colonel Rhoades has an opportunity thousands of times each year to make that decision in his mind. Before him are two or three bidders, all offering a certain price for a cow. Finally, all three say they are through. Sometimes he stops right there, taking them at their word. At other times he goes right on, asking for further bids, just as if the bidders did not mean what they said. So you see, Ben Rhoades has some way of determining when a man really means what he says. Frankly, the Colonel replied to my question that he didn't just know how he knew when a man mean "No." He feels that it is a sort of auctioneer's instinct that tells him to keep right on, or stop and "knock off" the animal. He admitted, though, that he is helped by the expression on the man's face and, of course, by his knowledge of human nature. Generally, the quiet man really means "No," when he says it, and the man who shakes his head vigorously and say "No" loudly and with seeming determination is not really through. Colonel Rhoades usually tries this type for another bid.

## SOURCES of INFORMATION
*"The Fruit of the Tree of Knowledge"*

MOST of the bulletins described are free. Others may be obtained by remitting price mentioned. Address Division of Publications, U. S. D. A., Washington, D. C.

**FARMERS' BULLETIN**

Care and Repair of Farm Implements (Series) .....946, 947, 1036
A Simple Steam Sterilizer for Farm Dairy Utensils ..... 748
"Take-all" Disease of Wheat....1226
Milk and Its Uses in the Home....1207

**BULLETIN**

Unit Course in Swine Husbandry....68
Garden Flea-Hopper in Alfalfa and its Control .....964
Manufacture of Cows' Milk Roquefort Cheese ..... 970

**Price**

Flushing and Other Means of Increasing Lamb Yields.... 966 5c
Western Sneezeweed as a Poisonous Plant ..... 947 10c

From the Agricultural Experiment Station, Bozeman, Mont., may be secured the following bulletins:

**BULLETIN**

How to Candle Eggs.....97
Quality in Sunflower Silage .....96

The Agricultural Experiment Station, Berkeley, Cal., has published two interesting bulletins which may be secured free upon request.

**BULLETIN**

Factors Affecting Quality of Ripe Olives Sterilized at High Temperatures .....333
Prune Growing in California .....328

### Book Review

"NUT GROWING," by Robert T. Morris, published by the McMillan Company, New York, N. Y.

Mr. Morris successfully has covered in his book the essentials of nut growing in a general yet concise manner. It is not devoted to the industry in any particular locality, but covers the principles and main points applicable to the most popular tree nuts. Instructions for grafting are clearly illustrated.

The care of the orchard, pruning, eradication of parasites, types of soils, and propagation are subjects taken up separately.

### The Editor Goes Exploring

WE HAVE just completed a most interesting "tour" and we want to tell you about some of our discoveries.

We met one man who had a message of great interest to tenants who hope to own farms of their own. Here is a part of what he had to say:

FARM RENTERS—You can become a farm owner on terms very much like those you are now paying to rent land. We have deep, rich soil with complete irrigation and drainage systems. We are willing to co-operate with hard working, reliable men who want to become owners of farms.

Having heard that there are a great many men out of work we were particularly interested in this "sign-board" which caught our attention:

WANTED—SALESMEN WHO CAN sell high grade, dependable nursery stock; exclusive territory; outfit furnished and cash advanced weekly.

And knowing that some of the most valuable discoveries are made right on the farm, we were impressed by this announcement:

OUR introduction—Wonderful new Hybrid Alfalfa.

Then we found a man whom we resolved to introduce to several of our friends who wish to sell their farms; he said

WANTED—To hear from owner of good ranch for sale. State cash price, full particulars.

And finally we discovered a chance to realize upon some of the "junk" that cluttered up the attic, for we saw this statement:

BOOKS BOUGHT—Choice and rare books a specialty.

Yes, you have guessed it! Our "tour" was through a department of our own magazine—the "Farmers' Classified Market Place," on pages 30 and 31, and these are just samples taken at random, of the interesting and valuable little ads that you will find there—The Editor.

*Install a good piano NOW in your home!*

CONVENIENT terms on any piano are always cordially extended by this store.

Enjoy your piano while paying for it.

Whether you select a Steinway Duo-Art grand piano or a cheery, modest-priced upright, our reputation of fifty years will be found standing solidly behind it.

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*The coupon below is for your convenience. If you cannot call, mail it to our nearest store.*

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Fastest cutting LOG SAW made. 310 strokes a minute. Light weight. Most powerful. Does work of 10 men. Easy to move from cut to cut and log to log. Friction Clutch controls saw blade while motor runs. Saws any size log into any lengths. When not sawing uses portable engine for pumping, grinding, other power jobs. *Read this man's report:* "My Log Saw is a marvel. All the neighbors hardly realize it can do the work of 10 men with cross cut saws. I cut enough wood in less than 4 days to last two families a whole year. I made 26 sets of a large beech log and used less than half a gallon of fuel."—D. Kinsey, R-2, Farmersville, Ohio.

Tree Saw fells trees; Limb Saw cuts branches. Other Saw Rigs and farm and shop engines from 1½ to 22 H P. Log Saws shipped promptly from one of nine warehouses nearest you. 30-Day Trial. Cash or Easy payments.

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**Marshall Strawberry Plants**

"Happy Valley Marshall"
Strong—Vigorous—Healthy
Northern Plants

$8 per thousand $1 per hundred

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These are but a few of the departments in ORCHARD and FARM "Classified Market Place." Note the many bargains and opportunities in this section of ORCHARD and FARM, Pages 30 and 31.

*Paints, Varnishes and Building Material*—Save money by consulting the "Farmers' Classified Market Place," pages 30 and 31.

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REX
KING OF SPRAY MATERIALS

"There is a REX for Every Orchard Trouble."

Write Us for Descriptive Matter

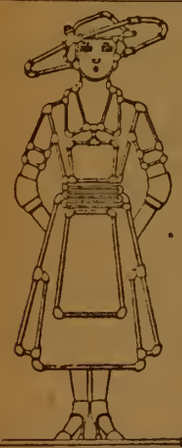
REX LIME SULPHUR SOLUTION
REX SPRAY DRIED LIME SULPHUR POWDER
REX BORDEAUX POWDER PASTE
REX EMULSO AN EMULSIFIED CRUDE OIL
REX MISCIBLE OILS

THESE ARE THE SPRAY MATERIALS MORE LARGELY USED AT THIS TIME OF THE YEAR

THE SUPERIOR EFFICIENCY OF "REX" SPRAYS IS UNQUESTIONED

California Rex Spray Co.
Benicia, Calif.

—"REX" SPRAYS — The Standard for 20 years



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*Used Pipe and Screw*
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PACIFIC PIPE CO.
229 Howard St. San Francisco

DOUBLES THE VALUE OF HIS COWS

Uses Kow-Kare with Grain Feed with Wonderful Results

This Yankee dairyman knows the value of increasing the milk yield through perfect cow-health. R. D. Johnson of Groton, Conn. writes:

"Have used your Kow-Kare for the past two years, and have never fed cows any grain without giving one tablespoonful of Kow-Kare. I have positively doubled the worth of cows. I bought a cow a year ago for $75 and she was giving fourteen quarts per day, and she has just freshened again three weeks ago, and I am getting twenty-four quarts per day, and Kow-Kare made this cow. Have four others that I bought that were giving from fourteen to sixteen quarts and now I am getting twenty-two quarts per day from them."

Kow-Kare is a valuable winter aid in the cow barn because it keeps the assimilation and digestion in healthiest condition when the feed must be mostly concentrates and roughage. Winter housing and feeding reduce the vitality and activity of the milk making organs. Kow-Kare restores and keeps digestive and genital functions healthy. Barrenness, Abortion, Scouring, Bunches, Milk Fever, and Loss of Appetite are banished by using Kow-Kare as directed.

The milk yield tells the story of the healthy herd—and poor milkers mean a loss. Let Kow-Kare help you to a bigger dairy profit. General stores, feed dealers and druggists sell it at the new reduced prices—65c and $1.25

DAIRY ASSOCIATION CO., INC.,
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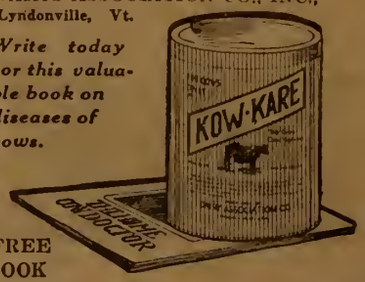
*Write today for this valuable book on diseases of cows.*

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Improves alkali soil, transforms latent potash and phosphates into available plant foods.

Prevents wire worms, eelworms or nematodes, smutty grain, ants and potato scab. 220 lbs. per acre has increased crops up to 500%.

For dry dusting, use "ANCHOR" Brand Velvet Flowers of Sulphur.

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Write for circulars Nos. 6 and 8, price-list and samples. State for what purpose sulphur is to be used.

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*The Feed You Should Know—to Make Your Calves Grow*

Saves dollars and cents on your raising expense. Makes your calves as fine as silk. Cost is just one-fifth of milk.

Send for booklet, "How to Develop Calves Profitably."

NICHOLLS-LOOMIS CO., 2505 Santa Fe Ave., Los Angeles

# Testing Oil in Your Laboratory

By W. H. Gardner

***WALTER GARDNER is one of the best-posted tractor men in the West. For years he has made personal observations in field and factory. You will enjoy the racy style of his helpful contributions, which appear regularly in ORCHARD and FARM. —Editor.***

Let's call this particular oil salesman "Frank." But what Frank called a certain garage owner wasn't pretty! Frank was mad! He had made several attempts to sell his oil to D. R. Bird, but that individual, being reasonably well satisfied with a competitive oil, had been cold, brusque, and even a mite discourteous.

One day, Frank walked into the corner of the garage where Old Man Bird was reading the paper. He leaned over the table and held four long bottles under the eye of his quarry.

"You know something about oil," he began briskly. "Which of these bottles contains the best?"

Bird grasped them instinctively. He had no wish to waste time on Frank — but there is a sort of flattery in having one's advice asked and due respect paid to one's judgment. He held them to the light. Then, one by one, he reversed them, critically watching the viscosity of the last few falling drops. Finally he turned to Frank and held up one bottle.

"Not bad oil, that! Other's not so good, but fair enough! But this one here is the best!"

Then Frank reached over, took the bottle, extracted the cork and drank the contents in one triumphal gulp!

Then, before the amazed Mr. Bird could recover his breath and dignity, Frank forcefully explained to him that he didn't even know corn syrup when he saw it, and accordingly most probably didn't know a darn thing about oil! And it happened that Bird was a good loser and a game sport, and that little stunt of Frank's finally led to a substantial order.

As far as looks are concerned, no one can tell much about oil. Color means something, but not much. Viscosity at ordinary temperatures is interesting, but viscosity at motor temperatures is the important thing. Not even in the chemist's laboratory does any one single test provide material on which to pass competent judgment on two oils.

Water will lubricate a motor until it boils away—and water is cheap. Molasses will lubricate until it gets a little warm and turns to carbon—and molasses is thick. Linseed oil will lubricate until it oxidizes—and linseed oil doesn't carbonize. One thing alone means nothing.

Yet the perfect oil for tractor or automobile motor must have one main virtue. It must retain its viscosity, or lubricating value, under a high motor heat.

There are two kinds of lubricating oil on the market—one made from "asphalt base" crudes, the other from "paraffin base." Most of the latter comes from the East, although considerable amount is produced from one field in Ventura County.

Now, in oil, as in many other commodities, price seems to be a criterion of value. "Paraffin base" costs more, but doesn't so quickly thin out under heat. On the other hand, "asphalt base," being cheaper, can be often drained out and thrown away with little loss. Let us review the arguments in favor of each type.

"Paraffin base" costs perhaps a third as much again as the other. But it seems to have more body at a high temperature and to hold that body for a longer term of use. It will run forty hours in a crank-case against perhaps twenty-five hours for "asphalt base." When taken out it is partly carbonized, diluted with by-passed fuel, but still capable of lubricating with reasonable safety. However, during those forty hours, if it is used in a tractor motor, there is certain to be gathered considerable dust. Perhaps the oil will run forty hours without draining—but should not the dust be cleaned out oftener?

The "asphalt base" users say, "Makes no difference what oil you use in a tractor, your case ought to be cleaned out and new oil put in every twenty five hours. Why throw away good oil? Why not use cheap oil that will last just that length of time?"

But the "paraffin base" man argues "Yes, but *do* you change oil every twenty-five hours? Suppose you forget; suppose you work just one more day; suppose a hired man is a little careless about his instructions—where are you on a forty-hour run with twenty-five-hour oil?"

And that's a telling point! For mighty few drivers of automobiles or tractors are strict enough in the habit of changing oil. They go by the oil level—which does not tell how much *oil* they have in their crank-cases, but how much *liquid!* They feel that when they put in a quart of fresh oil they're treating the motor right, but that's like adding a quart of sweet milk to a gallon of sour—it's all sour in an instant!

Out near La Habra is a seven-year-old tractor that has done the work on 85 acres belonging to the Smith brothers, as fine a walnut grove as you'll see. It never has failed to work at the wish of the driver. The total cost of repairs (and it's a track machine) has been about $250. The same drive sprockets are still on the machine—even the same fan belt! And these people use the very cheapest oil that they can get. But, every night after work, that machine is greased and oiled thoroughly while it's hot. Every third night the oil is changed. Not sometimes, but every third night! And that tractor, apparently, hardly ever will wear out.

But all of us are not so methodical as are the Smith brothers. Some of us forget. Some of us have to depend upon indifferent hired help. Maybe that refiner is right who declares "No milk is too good for a baby—no oil is too good for a motor!" Let the reader weigh the various arguments.

Every man who owns a motor has the best of all laboratories to test out the various oils that are on the market. With the record of how many hours it can run in his machine before it "wears out;" with the knowledge of how much it costs "per oil-hour," with data on the efficiency of dust-collecting devices, each man may find an oil that seems well suited to his conditions. And when it is once found, stay with it. Reward the right oil with your permanent patronage.

## *Will Your Tractor Work Seven Years?*

***THE Smith brothers own a tractor that has been operated without serious trouble for seven years, simply because they solved the oil problem at the start. In this short article Mr. Gardner gives some tractor truths that will help every operator to choose the right lubricating oil.***

# Kindness Pays Big Dividends

## The Remarkable Achievement of a Herdsman Who Made More Than $45,000 for His Employer

THIS is a brief story of kindness to animals. But it isn't the "sob stuff" of the humane society, nor a tale of the call of the wild.

The magnificent animal illustrated is "King Segis Pontiac Jennek," one of the most famous Holstein sires in America, now the property of the Santa Monica Dairy Company, of Santa Monica, Cal.

Less than a year ago King Segis was sold for $4400 as "unmanagable." His was regarded as one of the worst tempers in kinedom. The life of his caretaker was constantly endangered. He could not be trusted; his evil eye beded death and destruction.

But the disposition of "the King" has undergone a remarkable change. And the miracle has been wrought by an Irish herdsman, Patrick Donahue.

Patrick knows animals—particularly cattle. And beneath his rough exterior and Celtic banter runs a deeper current of seriousness and real affection for the dumb beasts under his care. He has tamed "the King"—no question about it. The lordly animal is like putty in his hands. Yet, he takes no chances, as his attitude in the picture shows.

(Photo by Blackmore)

*"Pat" Donahue Holding King Segis Pontiac Jennek*

### HIS OWN EXPLANATION

"When I first took charge of this bull," said Pat, running his hand affectionately over the animal's massive neck, "I saw at once that it was fear which had made him mean. To this day, if he is abused in any way, he remembers the guilty person and will attempt to avenge himself on sight. Therefore, I started out to gain his confidence with gentleness, combined with firmness. I never have abused him, but on the other hand have let him know I was his master. He knows the feel of my hand and the sound of my voice. He seems to feel that he can trust me. That's all."

Thus briefly did "Pat" dismiss his remarkable accomplishment. But from G. H. Railsback, manager, we heard a story of infinite patience and care. Donahue did not accomplish the reform in a week or a month. At times it seemed as though the big beast always would be ungovernable. But it was because Pat would not give up that he finally won out.

### AN OUTSTANDING CHAMPION

King Segis has 8 A. R. O. daughters, and has triumphed at every fair where shown since his regeneration. Formerly it was almost impossible to exhibit him.

At Sacramento, Ventura and Riverside this year he was first Aged Bull, Senior Champion and Grand Champion and in addition took first at Riverside at the head of his Aged Herd.

"The King" now heads a strictly utility herd. The president of the company owning him is H. Michel, a practical producing dairyman. The dairy concern maintains a milking "string" of some 250 grades and pure breds. It is said to be Mr. Michel's ambition eventually to make the entire producing herd purebred. The dairy is one of the most successful in California, Mr. Michel having started at the bottom and built up his holdings with the proceeds of the brimming pail plus the kindness to animals of Patrick Donahue.

For King Segis Pontiac Jenek is valued now by his owners at $50,000, which, deducting the purchase price, leaves just $45,600 to the credit of Pat that he has made for his employers. "You'll have to hand it to the Irish!" —J. C. K.

# "I Like Hogs"

(Continued From Page 6)

rather than a complete rotation for maintaining good yields.

"I pasture my stubble fields immediately after harvest until they are plowed, with 50 head of cattle and about a dozen horses and mules, obtaining a lot of inexpensive fertilizer that way. By alternating hay and grain lands, and plowing lands that have been in hay first, I manage to keep the stock in each of the fields a considerable length of time.

### RETURNS FROM GRAIN

"In 1920 I had 170 acres in wheat. Of these 70 were poor light soil which I am bringing up gradually in production, and which brought down the total yield considerably. The remaining 100 acres, mainly adobe land, averaged 1085 lbs., or a little better than 8 1-3 130 pound sacks per acre. At $4.375 per cwt, this gave a return of about $42.50 per acre, or about $32 per acre net. None of this land had been summer fallowed.

"Of course the price in 1920 was unusually high, just as it was abnormally low this year. At the same time, labor and other expenses were at their highest in 1920, and when prices and labor return to normal, I believe a conservative figure for net returns per acre with the same yield would be $25. I feel confident from results the past few years that by continued deep and early plowing and summer fallowing I can bring up the yield and therefore the net return per acre a great deal.

"My barley yields have been about twice as great per acre as the wheat. All my barley goes to market by way of pork. I believe that, year-in-and-year-out, I can get much the greater returns that way, and at no time in the past more so than this year, when

(Continued on Page 18)


# RUNNING WATER

*Makes Country Life Attractive*

All that many country homes need to be complete is running water.

One of the greatest drudgeries of country life is the carrying of water.

With a Dayton electric driven water system you can have running water in your bathroom, laundry, kitchen, dairy, barns—or anywhere you want it.

Do away with the drudgery of carrying water. Have a modern, up-to-date home that you will enjoy living in.

Ask your dealer about the Dayton. If he doesn't handle the Dayton, write us for complete Literuature.

## Dayton Pump & Mfg. Co.

Windmills are obsolete THE DAYTON way is the modern way

*San Francisco Branch*

401 Fourth Street

San Francisco

# Prepared Casein Spreader

KAYSO

A SPREADER for ORCHARD SPRAYS

Kayso is easy to mix because it requires no cooking. Just sift it slowly into the spray tank while the agitator is running. Kayso does not cause burning or toxicity. It makes the spray cover foliage and fruit evenly—without injury.

**CALIFORNIA CENTRAL CREAMERIES**

425 BATTERY STREET SAN FRANCISCO

740 TERMINAL STREET LOS ANGELES

# The Little Old Lady in Black

(Continued from Page 10)

and seemed to float away in dizzy blackness.

ALL was quiet when finally a cool breath of night air fanned her into consciousness again. Dimly she sensed a pale face bending over her. She roused herself and looked about. "Wh-what happened? Where am I?" she murmured faintly.

"There, now. Rest awhile. You fainted, I think. Are you all right?"

It was a deep bass voice that was strangely familiar. Oh, yes, she recalled—the young man who had taken her in his car. She became conscious that she was clinging to his hand, and gently withdrew her fingers.

"I-I guess I'm all right now." Nervously she put her hands to her head, and seemed relieved to find her bonnet and veil still in place.

He fumbled at the switchboard, and the interior of the car suddenly was flooded with light.

"Oh, my dear," she cried out. "You are hurt. Your face—"

He held his wet handkerchief to his cheek. "Just cut a little. It's stopped bleeding now. Nothing serious. Whew!" He gave a low whistle. "I did have a narrow escape, at that. See here."

He pointed to the upholstery at the back of the car. It was cleanly slit from top to bottom as with a razor edge.

She shivered in horror. "He had a—he tried to—"

Ralph stooped and picked up an object from the floor. It was a long knife; the polished blade glittered. She recoiled as he turned it this way and that. "But that isn't all," he announced. "What do you think of this?" He held up a heavy iron window-weight. "That's what he swung on me at first. Gosh, if that had connected with my skull, you'd have had only one companion from then on."

"O-oh!" Again she shuddered, and touched the ugly, jagged iron with trembling finger. "You dodged so quickly. Why it was all over before I knew it. I never dreamed he was a desperado. You are wonderful! How did you know—"

He pointed to the little rear-view mirror above the windshield. "I was watching him—in there," he answered simply.

"OH, I am so frightened." She clutched his arm and he patted her hand gently. "Is he—is he gone? Are you sure?"

"Yes, he is—gone. He will not trouble us again," was the grim reply. He was surveying the situation.

"We can pull out of this ditch all right. Just a moment until I throw some stones in front of the wheels. He climbed into the seat again; started the engine. The tires spun, then took hold. He opened the throttle wide. With a mighty roar, the great car pulled itself out upon the highway, and once more they sped on through the night.

But now the rain had ceased. A gorgeous moon was peeping out from behind the scudding storm-clouds. Here and there a star broke through. The dripping trees emerged in fresh-washed splendor. The black curtain lifted and the world seemed at peace.

The little old lady was first to break the silence. "We turn at the next crossing," she said. "Our home is the third from the highway, where those big pines are standing. You have been so kind and gentle and—brave. I scarcely know how to thank you."

"Thank me!" He laughed with some bitterness. "I should get down on my knees and apologize to you, ma'am. I would not have had you go through [illegible] ing in the world. If I [illegible] rn to mind my own [illegible]

[illegible] you talk so," she chided. "[illegible] ying to help me. You [illegible] me. It was my fault that we took that—that awful—thing—with us. But I felt sorry for him. I am not very wise in the ways of the world, I guess. I've always been so protected. You are wonderful, Mr.—Mr. Hamilton. I should like to know you better. Won't you come some day and—Oh, here we are. Just turn in at that gateway."

"What a beautiful place!" he ejaculated. The big pines, sentinel-like, guarded an enormous entrance of stone. The car glided along a palm-lined driveway. He caught a glimpse of velvety lawn. The moonlight filtered through an immense grape-arbor. Then came the scent of orange blossoms, sweet upon the moist breeze. They stopped under the portico of a rambling brick house.

"Here, I will help you out. He took her hand, now divested of its black glove, and found himself marveling at its softness. Carrying her bag, he piloted her gently to the great doorway. They stopped within its deep shadow.

"The door is not locked," she explained. "Only the servants are here, and no doubt they thought I remained in town and have gone to bed." She tried the latch.

"I am so sorry——" he began.

"Now, none of that. You must not feel so. It has been for me a very happy Christmas eve." Suddenly she removed her bonnet with its heavy veil and impetuously kissed his cheek.

For some reason his heart leaped wildly. Abashed at his strange discomfiture, he tried to mumble something coherent.

Now she had swung wide the door and stood full in the light of the vestibule lamp. He gasped; took a step forward. A radiantly youthful face of delicate beauty, framed in clinging curls, smiled at him above the black cloak.

"Goodbye, Sir Knight," she murmured, very softly. The door slammed and she was gone.

JUST forty minutes later Ralph found himself at the gate of the Circle Bar. He came to with a start. Actually he had not realized where he was going or what he was doing. Now he locked the damaged car in its garage, and still dazed, found his way to his room at headquarters.

Fumblingly he located the switch and flooded the place with light. His room-mate, Collins, the Field Superintendent, heaved himself half out of bed and protested vigorously, if sleepily.

"Hey, what's the big idea—turning on the light in middle o' night. Can't y' let a fellow sl—wh-what y' been doin' to your face?" Now Collins was fully awake.

But instead of answering, Ralph grasped a pillow, and swinging it three times around his head, let it drive at his hapless "bunkie." Then he emitted a blood-curdling war-whoop and did a weird dance around the cot. "Oh, blue were her eyes and saucy her nose, and her lips were as soft as the heart of a rose," he sang, terribly off key.

"Say, it's a good thing there's nobody else tryin' t' sleep in this building. Why don't you let that bootleg stuff alone?" growled Collins, reaching for a pitcher that stood near his cot. A shower of ice-water cut short the serenade. Ralph hastened to remove his dripping coat.

"No, I'm not drunk, Col," he insisted. "But say, I've found her at last—the girl—THE girl. She's——"

"Oh hell. Tell me about it in the morning," was the highly unsatisfactory reply. And so Ralph crawled into bed—but not to sleep.

IT was nearly noon, on Christmas day that a hopeful caller presented himself at the door of the great brick house. A plaster concealed an ugly gash in his cheek. He was scrupulously shaved, manicured, massaged, cravatted and shined. And he held in his arm an enormous, long cardboard box.

Expectantly he rang the bell and waited. No answer. He rang again. Then he walked quickly around to a side door. His knock brought no response. He tried the back door with similar results. His face fell. His dejection, in fact, was almost pathetic. Finally he scribbled upon a card a name that had been revealed to him through most casual but systematic inquiry among his friends. And leaving his package, at the doorway, departed with lagging steps.

Ralph spent most of that Christmas afternoon at the telephone. At intervals of 30 minutes he called a certain number, each time with new hope and each time with the same result—no answer. At 10 that evening, he got out his car and drove to the brick mansion. It stood dark and silent among its pines. He turned the car onto the highway and drove madly for an hour in open defiance of the speed laws. Then he returned to the ranch and went for a long walk over the hills.

Always before him danced the vision of a slender girl with prevocative lips and clinging curls. He saw her standing there in the doorway—the black cloak flung back from her rounded shoulders; felt the touch of her lips upon his cheek. Why had she disguised herself as an old lady and gone forth alone on Christmas eve? Why had she concealed her identity from him until the last moment, and then set his head awhirl with that maddening smile? Never before had he felt this way about any girl. He was determined to find her again—to tell her of the thoughts that surged into his brain.

But morning took him far into the mountains upon important duties and not until late that night did he finally drop from the saddle, hungry, dead tired, gloomy—but still hopeful.

"After supper, I'll try again," he thought.

Fate, however, had decreed another ending for his great adventure. The meal finished, Collins produced a letter. "U'm, orange blossoms!" commented Ralph's roommate feelingly, as he held the pink envelope to his nostrils.

"Give me that," demanded Hamilton, excitedly.

"Fat and heavy, too," added Collins, dodging behind the table, and turning the missive about. "And it's marked Personal. She writes such a pretty hand!"

Having finally removed the note from his friend's clutches by force, Ralph stuffed it in his pocket and ran to one of the great barns. He found a light burning in the feed-room, where, seated alone upon a bale of hay, he opened the envelope with eager, trembling fingers.

"My Dear Mr Hamilton," he read. "I certainly owe you an explanation. What must you think of me, masquerading as an old lady, and allowing myself to be kidnaped by a strange young man! As I look back upon our adventures of Christmas eve, I scarcely can believe it was I who played the part of the—shall I say, heroine?

"No, I was more of an adventuress. At least, I must appear so in your eyes—and for some reason, I do value your opinion of me very highly. There that's a terrible admission.

"But I was going to explain myself. You see, I have been doing some charity work among the foreign children and I decided to masquerade as an old lady the day before Christmas and distribute some little gifts among the kiddies in town. My mother and father were away and in order that no one should recognize me, I slipped out of the house to the highway and rode in on the motor-bus. I never dreamed it would rain so.

"This delayed me in making my rounds and it was dark before I realized it. When the storm grew worse and the bus failed to come, I was really worried. I had just about concluded to go to the home of a friend and reveal myself when you came along—and you know the rest.

"We have been away over Christmas, visiting and father closed the house for a day or two so that even the maid was gone. Of course, no one was there to receive you when you called. But I found your beautiful flowers. They were still fresh and sweet, and I do thank you so much for them.

"I told mother all about my adventures and she gave me a good scolding but father only looked grave at first and then laughed and said—well, I won't tell you what he said. It might make you conceited. But he had heard all about you and insisted that he must see you personally and thank you—as soon as possible.

"Now, I think that is a splendid idea, and we shall all be home tomorrow evening, so won't you drive over and have dinner with us?

"Now, don't laugh at me for dubbing you 'Sir Knight,' but I found you to be thoughtful, gentle, resourceful and brave. And those qualities mean a great deal—in this day and age—to—

"A Little Old Lady in Black."

# "I Like Hogs"—Meiners

(Continued From Page 17)

barley has been so cheap, and hogs have kept up comparatively well.

"While grain farming does not pay as highly as a going orchard, I do believe it is more profitable (in the light of the condition of many orchards after the past three years of light rainfall) than an orchard, even of deciduous trees grown WITHOUT IRRIGATION. Also, it takes a good deal of money to be able to put in an orchard and wait for returns to come in. As a renting proposition a YOUNG orchard is nearly an impossibility."

Meiners' hog feed is produced entirely on the ranch, alfalfa pasture being the "back bone" of the ration. About 75 acres is maintained in alfalfa. The quick growth, strong bone, prolificacy and good health of Meiners' hogs, he attributes largely to the feeding value of the green alfalfa, plus the freedom and exercise they enjoy.

"The best way to cut the cost of feed is to raise it," says Meiners. Pasture and economical feeding, however,

*This Young Hereford Sire Was Recently Acquired*

and combines with sanitation and advanced methods to insure the health of the herd and to increase the owner's profits. Meiners, however, is not making the mistake of sinking his capital in unnecessary equipment.

Impressed by his up-to-date and business-like methods, we ventured the supposition that he must have been born and raised on a farm. So enthusiastic is this tanned young pork-peddler and so well versed in practical production, that we were unprepared **for his answer.**

Meiners is quiet and almost aesthetic in the culture of his speech. "No," he replied with a twinkle in his eye, "I was born in Milwaukee and lived there until I was seventeen years old. But," he added quickly, "I guess I am a reversion to type, for my grandfather and great grandfather loved animals and agriculture.

"I was a victim of the Milwaukee climate, and ill health sent me West 'to do or die.' It was well, perhaps, that the blood of my agricultural ancestors flowed in my veins for had I not taken to the open, probably I should not have been alive today. As it is, I have found health and what I believe to be true independence in California's great out-of-doors."

Meiners applies daily the practical and scientific knowledge which he gained as a dairy and farm worker, and as a graduate at the University Farm School at Davis, which he left in 1915.

"Without the knowledge I acquired at the Agricultural College," he concluded, "I could scarcely have reached the blue ribbon class with my animals, or made a financial success of my ranch, in so short a time.

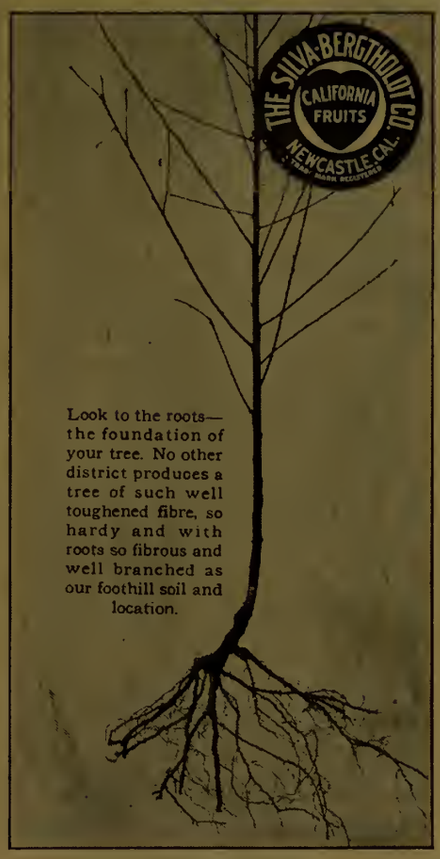
"You have a foreman at the ranch, of course," we suggested.

"No, I am my own foreman," he shot back. "And I do a lot of the work myself, particularly with the hogs."

For some reason we felt like apologizing. And yet one more—and final—doubt remained. Cautiously we framed the question: "But how about the country life? Does it not grow irksome? Do you not sometimes long for the bright lights again, and—?"

"No. I have no desire ever to return to the city," he replied without hesitation. "I go back occasionally, but I can't stay long. I feel crowded, oppressed. I can't breathe, and it is never long until I am back again, contented and cheery at Cheery Acres. And—you know (as he thoughtfully lighted a cigarette) I LIKE hogs."


# Plant an Orchard

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Every acre of land adapted to fruit growing that you now employ in growing grain, hay and other crops, is too valuable for fruit to be employed as you are now doing.

Every year that you grow these other crops instead of planting your acreage to orchard, represents not only a dead loss in money, but more than that, one year's loss of life's opportunities.

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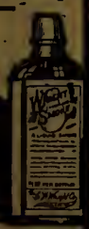

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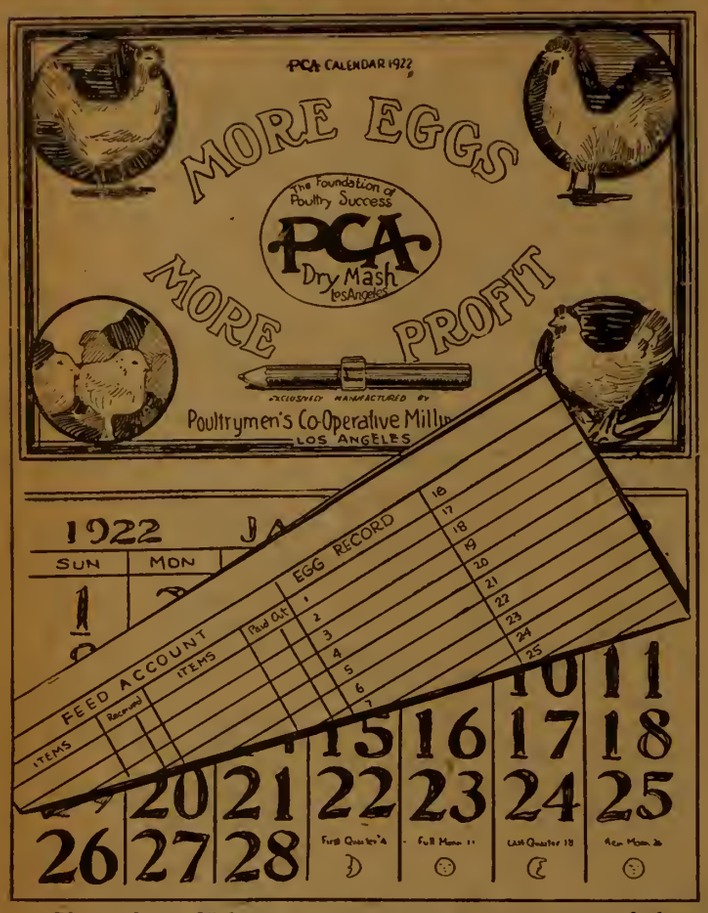


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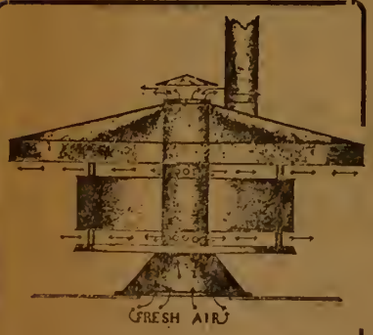


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# December With Turkey-Raisers

By Marshall A. Stutsman

## How, When and Where to Market Your Turkeys

WHEN shall fat turkeys be marketed, for greatest profits? The average reader will answer immediately, "At Thanksgiving time." And it is true that the Thanksgiving market is a good time to sell, for those who have early birds and heavy feeding expenses, due to lack of free range or grain stubble.

It should be remembered, however, that if the birds were not hatched very early, say in January, they will, if retained and well fed, gain from three to nine pounds additional in three to ten weeks. In view of this fact, and the higher market which usually prevails at Christmas, the writer has reached the conclusion that the Christmas market is best.

### THE HOLIDAY MARKET

In many cases, it may pay to hold the birds until after Christmas. It is an erroneous belief that there is no market after the holidays. Turkeys, as a rule, can be sold any day in the year and very frequently the Thanksgiving and Christmas markets are the lowest, the majority of growers forcing their birds into the hands of wholesalers at this time when the supply is great.

I have never sold at the holiday season any birds except those which I knew would gain no more weight. The most profitable time to sell is after all the others have disposed of their stock, when the supply is at the minimum. During the early spring the green feed which they relish, is at its best and is to be had in abundance.

The cool wet weather is another great asset. The later birds should gain weight steadily until the first of April or May.

### WHERE TO SELL

The turkey producer must beware of a certain type of "thief" who may stage a daylight robbery directly before his eyes. In fact, the grower actually may aid in doing the job, to his ultimate disgust and loss. I refer to the unscrupulous dealer who uses inaccurate scales. I have had buyers call at my ranch with two large trucks and all the turkey coops they could transport, ready to buy turkeys on foot.

At daylight the task of weighing and loading was begun. My scales had been tested and had the official seal attached. The buyers' scales were of a large spring type (unlawful to use in trade in this State). The small arm of these scales was so bent that one pound and four ounces less than the accurate weight was registered each time the scales were used and each bird was weighed separately.

A truck-load of two or three tons of turkeys at 50 cents per pound represented considerable money, yet the buyers represented to me that they had used the same scales all season. The outcome of the matter was that the birds were carefully weighed on correct scales, resulting in a saving to me of about 10 per cent, or nearly $200.

This is what I termed, "attempted daylight robbery," and, in fact, it is a felony in California.

The producer should deal only with established, reliable buyers. He may find, in fact, that his best market is direct to the consumer.

Either the individual buyer or better still, the first class hotels will provide a profitable market. The price received from such trade may be from 5 to 15 cents a pound higher than is possible to obtain from the wholesaler or his agents.

Is it advisable to sell on foot or dressed? There are several factors to be considered. Unfortunately, there are buyers whose checks are not good. Some of my neighbors accepted checks from unknown buyers and later had them returned marked, "Insufficient funds."

Shipping live turkeys to the middleman also may involve loss. When shipped alive they are sure to shrink from 7 to 10 per cent in weight, according to the distance and the condition of the birds.

Again, there are unreliable commission houses as well as local buyers. Some of these class their shipments into various grades of culls, which, coupled with losses in transit, may make a heavy deduction from the total profits.

This does not mean that all buyers are unreliable, but the situation calls for careful investigation by the producer.

Therefore, I have concluded that the best method, when the birds are to be sold on foot, is to sell at the ranch an hour or so after the birds have been fed (this will mean practically an empty crop), accepting only cash in payment, and weighing on tested scales.

The practice of the buyers is to cut 10 cents a pound for a crooked breast bone, but I consider this practice unfair to the producer. After all, the most profitable way in which to sell the turkeys is to dress them. This may seem a cumbersome job at first, but it involves the satisfaction of knowing you are earning the best wages you ever made, a better price is realized, there is less loss from shrinkage and net returns are much higher. My records show a seven per cent shrinkage on dressed birds as against a 10 per cent shrinkage on live birds shipped. Furthermore, in shipping live turkeys, one suffers shrinkage in both weight and price.

HAVING made arrangements for the sale and delivery of turkeys it is well to prepare for dressing the birds about 10 days in advance.

Those selected can be marked by tying a strip of cloth on the wing. Those in the best condition should be chosen.

Three or four lengths of window-rope (or similar rope) should be tied to a beam in a shady location. A large wood button, with a hole in the center should be provided for each rope, a knot in the end of the rope holding it in place. This button should be the size of a section from a shovel-handle.

A cup should be made of a tomato can, provided with a stiff wire in the top, about 8 inches long and sharpened at one end. The wire should be bent over at the center. Sand or lead shot in the cup will hold the head of the bird downward while picking, and the blood will drip in the can.

Provide places to hang the birds separately, in the open air, where they will cool evenly and thoroughly as quickly as possible, which will require several hours. The easiest method of suspending is head downward by means of an opening cut in the leg.

Killing should not be attempted when the temperature is higher than 75 degrees and the birds should be picked in the late afternoon.

Before starting, place all stock to be dressed in a closed pen, where they can be caught easily; in this pen there should be plenty of water for them to drink.

Likewise a bucket of water should be placed within convenient reach of the operator, so that the hands may be kept wet, the water preventing the feathers from slipping through his fingers.

**TALE OF THE TERRIBLE TURK**

Do you know of a person who plumes
and parades—
Who eats 'til he's overly fat?
Who makes a big racket, but can't make
the grades—
Whose head is too big for his hat?
If you know such a man, strutting
grandly through life,
Just think of the future he lacks!
Don't envy the fellow his freedom from
strife—
Remember the turk and the axe!
—Justin Nutt

The first bird then is caught, and one of the ropes is wrapped at least twice around the legs. The button, between the rope and the turkey's legs, prevents the rope from slipping and does away with the necessity of tying.

The wings should be brought together over the back and crossed twice—once under and once over each wing. This will hold them and prevent terrific "flopping."

A long, slender, very pointed knife is best for killing the birds. It should be well sharpened.

Taking the head in the left hand, hold the beak open with the third finger and sever the jugular veins on each side of the throat so that the bird will bleed thoroughly. If this is not done, the flesh may be pink instead of yellow or white.

Next the knife should be inserted over the eye and passed through the the head into the brain, or the very center of the head. The cup should be hung on the bill at once and the dry picking completed within the next 12 or 15 minutes, while the feathers are most loose.

REMOVING TAIL FEATHERS

The tail feathers should be taken in the hand all at once and by twisting and pulling them at the same time the entire bunch will come out very easily; the rump and body feathers now may be picked with both hands, taking a handful of feathers with each hand until the neck is reached.

By wetting the hands and encircling the neck with the fingers of the right hand and pulling toward the head the entire mass of feathers may be removed with a single stroke. The legs may be picked in the same manner with a stroke towards the foot.

The wings are next. Wet the hands and taking a handful of the largest feathers, pull them out with one stroke, leaving four or five of the feathers on the end of the wing. The smaller feathers will be removed quite easily by moistening. Pin feathers may be removed with a knife blade and the thumb.

The wings may be folded by twisting them backward which will give the bird a more pleasing appearance.

Never attempt to pack turkeys until they are chilled entirely through in the open night air; if you fail to do so, they will turn green on the sides and near the gizard. The head and feet should be left on.

## Selling Breeding Stock

THE turkey producer may realize additional profits by devoting much attention to selection of breeding stock. This not only will be his personal insurance for a good crop, but also may make it possible to develop a profitable trade in breeding birds.

My purchase of wild toms, made at first for personal benefit, brought me many buyers who were just as willing to pay the same high prices as I had paid, making the breeding end the most lucrative part of my business, to say nothing about the increased production which I brought about in my own flock by using better stock.

(Other articles by Mr. Stutsman will follow.—Ed.)

## A Correction

IN THE November number of ORCHARD and FARM, page 14, appeared a slight error. The reference to an illustration read: "Upper left—A tail feather of good type. Upper right—The primary feather showing distinct stripes is good; the other of mottled appearance would disqualify."

This should have read: "Upper left—A primary feather of poor type. Upper right—A good primary feather, showing distinct stripes, and a good tail feather."

**Eagerly Await Arrival Each Month**—"We all look forward to the arrival of ORCHARD and FARM each month and enjoy every issue, as it is just brimful of the right kind of information for all interested in every class of agriculture."—A. P. Basher Jr., Camino, Cal.

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Remember that the ***International 8-16 Tractor now sells for $900***—the lowest figure at which this tractor has ever sold. The new price includes all the necessary equipment—platform, fenders, governor, belt pulley, etc. If you require larger power, keep in mind that the famous ***Titan 10-20 Tractor now sells for $900,*** and that the ***International 15-30 Tractor has been reduced to $1,750***—both selling at the lowest price at which they have ever been sold. All prices are f. o. b. Chicago. These prices certainly justify immediate tractor investment. See our dealer for full information as to deliveries and terms.

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Write for catalogue, and if a beginner or Cottage Bee-Keeping, which will be promptly mailed free.

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**APIARY DEPARTMENT**
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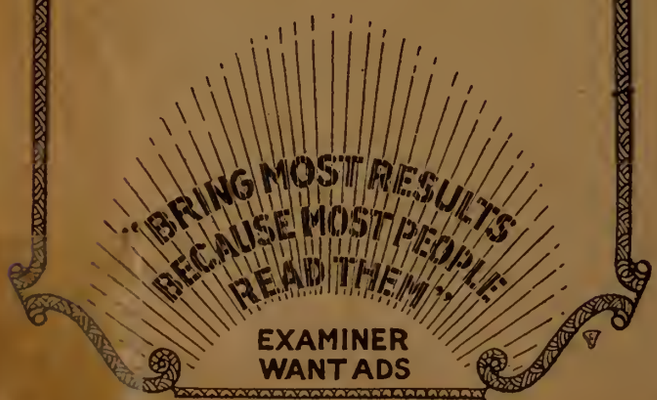




# The Care of Hatching Eggs

By M. A. Schofield

PRESIDENT, POULTRYMEN'S CO-OPERATIVE MILLING ASSOCIATION

LOOKING back over a period of 15 years, the writer has observed that success in the poultry business depends largely upon the hatching eggs. And the percentage of hatch is not the only important factor, for the chicks must be strong enough in vitality to be raised in brooders.

The causes of failure are various. In some cases, I observed, the ration did not enable the hen to lay an egg which would produce a strong chick. In other cases, green feed was not given in sufficient quantities.

Again, unsanitary conditions may have brought about low average egg production with accompanying decrease in percentage of chicks. Aside from conditions affecting the production of the eggs, however, is the important factor of care and handling.

The best egg may be ruined by mistakes of this kind. Nothing the poultryman can do will add any element of strength or increase the vitality of the chick after the egg is laid. But on the other hand, immediately thereafter, the forces of deterioration begin to work, the percentage of "hatchability" declining after the perishable egg is exposed to undesirable conditions.

## DESTROYERS OF QUALITY

The two chief factors which tend to destroy the quality and vitality of hatching eggs are: First, evaporation or loss of moisture; and second, exposure to too high or too low temperature before being placed in the incubator.

Experiments have shown the necessity of avoiding either extreme of temperature. A fertile egg contains a group of living cells which can be chilled and even destroyed by low temperature. An egg cabinet or other storage device which permits the passage over the eggs of a cold draught, may cause heavy losses.

Therefore, in frosty weather it may be well to keep the eggs where the temperature does not fall below 50 degrees. On the other hand, at a temperature of 85 degrees or more, the germ cells begin developing, not, however, in a natural way. As a result, the embryo dies soon after the egg is set.

A thermometer should be placed in the egg case. As a rule the poultryman does not realize how cold or how warm the eggs may become.

It is not necessary, as many believe, for the egg actually to freeze or the shell to be cracked in order to destroy its value. A good rule for cold weather is to air the eggs in the middle of the day and blanket them at night. In warm weather they may be aired at night and protected in the day time.

The writer has experimented both in the Sacramento Valley and in the San Fernando Valley in an effort to produce good hatching eggs during hot weather. He has found that even though the temperature reached 107 to 109 degrees in the middle of the day, it is possible to care for eggs so as to prevent injury.

The so-called "Chinese cooler" which is merely a frame with a metal cover and burlap walls, is familiar to many poultrymen in Southern California. A tiny stream of water is allowed to trickle down the sides, keeping them moist. This crude device is used extensively in the hot interior valleys where ice is scarce or unobtainable.

For best results, the cooler should be large enough to permit entrance for moving the egg case. Ordinarily, 6 by 6 feet by 6 feet high should be ample for storage and handling.

The cooler should be protected from the sun, but set where the air moves freely, and the flow of water so regulated that the walls are kept damp, with a minimum of overflow. Not only does the Chinese cooler supply moisture to prevent evaporation from the eggs, but also it tends to reduce the temperature under ordinary circumstances, about 30 degrees.

The experience of a number of poultrymen who use this device regularly, leads to the belief that better hatches and stronger chicks will result. Even for market eggs it is employed with great success during periods of high temperature.

## SELECTION AND CARE OF HATCHING EGGS

Here are four good rules, the observation of which should increase profits: First—Gather the eggs twice a day. In the event that you have an abundance of eggs, select from those laid in the fore part of the day. The morning eggs are heavier and larger as a rule than the eggs laid between 2 and 4 o'clock.

Second—Keep the nests clean, so that the eggs will not be soiled. The presence of manure or yolk of egg on the shell usually will destroy "hatchability." In wet weather eggs stained with mud are not injured for hatching unless the mud is badly mixed with organic matter.

Third—Do not try to hatch an egg laid on the dropping board or out in the yard. Unless a hen habitually lays in such a place, these eggs will not hatch.

Fourth—Select eggs with smooth shells. Owing to excessive evaporation, eggs with thin ends will not hatch well in an incubator. The condition of the shell also tends to indicate the vitality of the hen. It is difficult for a hen giving heavy egg production to produce smooth shells, and weariness on her part usually is shown in shell defects. Bearing out this idea, thin-shelled eggs usually have a thin watery white.

"Why shouldn't I hold my head high? I am the original early bird. I am master in my household. I always fight my own battles, and am not afraid to scratch for a living if necessary. I retire at a reasonable hour and always attend strictly to business. Isn't this something to crow about?"

## AGE OF EGGS

Practical poultrymen believe that eggs hatch best when set three to five days after laying. Eight to ten days ordinarily is as long as they should be held. Experimentally, chicks have been hatched from eggs several weeks old and at one time a number of chickens were said to have been hatched in Los Angeles from imported Chinese eggs.

## TYPE OF HEN

A hen laying every other day will produce a stronger hatching egg than one laying every day over a long period, for heavy laying has a tendency to produce under-developed cells, which lower the percentage of hatching. For this reason, excessive stimulation of breeding hens is almost as harmful as under-feeding.

Hens kept under our intensive system seem to require three essentials for production of high quality hatching eggs. These are, green feed, wheat bran and raw bone fed generously.

Since California is attempting to establish a reputation for high grade snow-white eggs, which are in demand in the Eastern markets, all poultrymen should co-operate in eliminating the yellow or tinted shell. Of course, a portion of the tint in California white eggs is due to heredity and would have been eliminated long ago had the poultryman taken care not to set from any eggs other than those that were chalk-white.

It is probable, however, that the feeding of clam shell with a reddish tint influences to some extent, the color of the egg shell. This may be remedied by feeding shell material which is perfectly white.

Since we are dependent upon New York and other eastern markets to handle our surplus, it is well for all commercial poultrymen to select hatching eggs with care, with a view to developing layers which give the minimum number of tinted shells.

**FROM TWO ACRES—$750 A MONTH**

This is what a certain young poultryman has averaged in "egg money" alone for the past year. And his two-acre "ranch" boasts a profitable hatchery, also! Read all about his methods in the January number of ORCHARD and FARM.

# Timely Suggestions

By V. O. Hansen

FEED some sunflower, flax or hemp seed this month. It will aid recovery of flesh and feathers after the moult.

This is a good time to build the new laying house—when the poultry requires less care.

Plenty of exercise and clean quarters during the winter months will remove cause for worry over the egg yield.

Permangenate of potash in the water is a good disinfectant, but do not give it too often, as it tends to toughen the digestive organs.

Are your brooding yards a "dead space" now? One poultryman uses the brooding yards for winter garden. The chicks leave the ground rich for a garden plot and it is cleared again before the chicks require it.

After trying straw, shavings, tobacco stems, dry grass and sand, I believe the sand makes the best nesting material. A fine grade of clean sand does not harbor mites, is not scratched out of the nest, will last longer and is cheaper.

In determining the sex of young stock of the dual-purpose breeds, that otherwise is difficult to detect, note the feathers of the "saddle." The cockerel feathers are pointed, while those of the pullets are very blunt.

Give no iron, sulphur or yellow corn to white fowls during the moult if intended for breeding or show stock, as these feeds tend to discolor feathers. Use more oats. A good mash contains ground oats, middlings and some gluten meal, but no corn meal or salt.

Plant green feed at once, if not already planted. Kale, swiss chard and beets are good. Many prefer barley to supply the need when alfalfa is almost dormant. One poultryman gathers the loose alfalfa leaves in the hay-barn when other green feed is short. He also mixes some alfalfa meal with the wet mash.

Those laying hens that you intend to market next spring—force them for all the eggs they will lay now. Then in January, before the drop in prices, market them. About the first week in February, as a rule, egg prices drop and feed usually advances in price. This causes the market price of hens to drop. Then, frequently, after having been fed the expensive feed throughout the spring months, the hens are sold out of condition and underweight, thus losing a big percentage of the profit they might otherwise have made.

**SPEAKING OF TURKEYS—TAME AND WILD**

"Say, Sambo, some time ago I asked you to supply my family with turkeys, didn't I?"

"Yessah."

"And I told you that I wanted tame ones, not wild."

"Yessah."

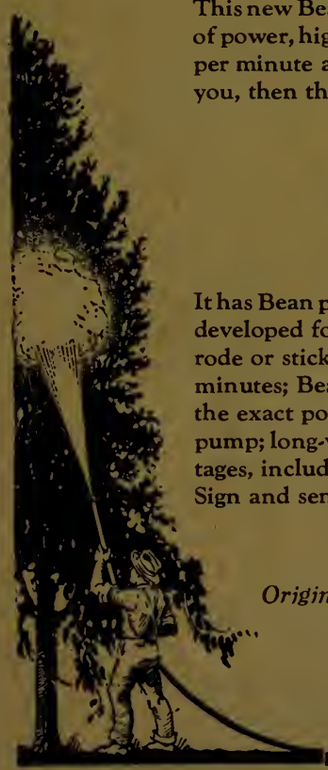
"Well, that one you sent us was a wild turkey."

"No it wasn't, boss."

"But I found some shot in it."

"Well, sah, boss, dat was a tame bird, all right. Dat shot was meant for me."

# A Sprayer Many Growers Have Long Wanted



This new Bean outfit meets the demand for a light-weight rig with plenty of power, high pressure, and big capacity. It delivers 12 gallons of liquid per minute at 300 pounds pressure. If that capacity is about right for you, then the sprayer you ought to have is a

## "Bean" GIANT TRIPLEX

It has Bean porcelain-lined cylinders, the most satisfactory cylinders ever developed for a sprayer pump; threadless ball valves, which cannot corrode or stick tight and which can be opened up entirely in less than two minutes; Bean patented pressure regulator, which holds the pressure to the exact point desired, and saves much wear and tear on engine and pump; long-wearing eccentrics instead of cranks; and many other advantages, including the absence of stuffing boxes and stuffing box troubles. Sign and send the coupon, which describes entire Bean line for 1922.

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The Bean Giant Triplex is equipped with the new 6 H. P. Bean engine, which can easily and quickly be made available for all kinds of power jobs. Ask about it.

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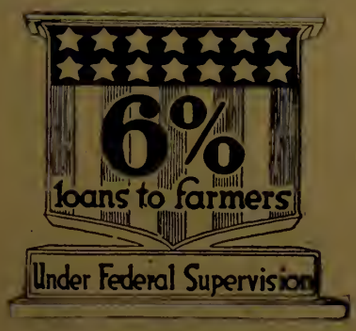


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Payments may be extended over a period of 33 years.

The borrower pays no commission. We loan direct to farmers. Loan made up to 50% of appraised value of the land, and 20% of the insurable improvements. Positively no red tape of any kind.

The best and broadest type of service ever extended to farmers.

***Write for further information to above address***

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Germain's is the only original PROVEN strain of Hairy Peruvian Alfalfa Seed. Remember this when you make your purchase. In 1916 we introduced this wonderful type and so great has been its success that today it has practically eliminated all other varieties. It comes in only ONE quality—the best—and for the protection of our growers is put up in sealed bags stenciled with the name GERMAIN'S PROVEN HAIRY PERUVIAN ALFALFA SEED.

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## ORCHARD and VINEYARD DISC PLOW

This view shows the narrow construction of the Orchard Disc Plow and the absence of any projecting levers or other parts.

All LA CROSSE Disc Plows are equipped with their wonderful disc bearings, which have been used for years. These bearings have no equal for wear. They are of the chilled ball and socket type, run freely and are easily oiled.

The branches on orange and lemon trees are very low, owing to the system of pruning in use, and this makes it essential that the plow must have no levers or other projecting parts to injure the fruit or trees.

The rear wheel is made so that it casters freely when the plow is raised, but is held rigid in the correct position when the plow is at work. This wheel holds the plow to its work and never allows the rear end to swing.

The depth of plowing is controlled by screw cranks conveniently placed on front of the plow. These screw cranks take the place of levers and are very easily operated for changing depth or leveling the plow.

The power lift on this plow is operated by the land wheel. The mechanism is very simple and strong and cannot get out of order. A pull on the cord causes the plow to raise and another pull lowers the discs into plowing position.

Write for prices and catalog.

2 Disc, 26 in.
3 Disc, 26 in.
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# Alfalfa Weevil Control

(Continued From Page 8)

rence of this pest in Utah, Nevada and Oregon.

The writer believes we are exceedingly fortunate in having the protection of the State Department of Agriculture, through quarantine regulations which to some have seemed drastic, but which are absolutely necessary if we are going to be free from this dangerous menace for any length of time.

Upon alfalfa production hinges, in large measure, the prosperity of the livestock industry. Anything that will interfere seriously with the production of our wonderful alfalfa crop, will cripple proportionately the dairy industry as well as other branches of the livestock business.

In preventing the bringing into California of any hay from infested territory, this State is providing one safeguard that is absolutely essential. In making it necessary that potatoes grown in any county of another State where alfalfa weevil is known to occur, be screened and packed in clean sacks, another chance for introduction of the pest is lessened.

### POTATOES A VEHICLE

It may be difficult for some to realize the necessity for this regulation, but the fact remains that potatoes in sacks have been a dangerous menace, and no doubt some of the spread of the weevil has been due either to insufficient care or to lack of regulations governing the movement of potatoes from places where they have been exposed to the weevil.

Time and again this pest has been found in potato sacks.

The most recent discovery of this nature is described in the last news letter of the State Department of Agriculture in the following words: "On October 1st, the first two cars of Idaho potatoes arrived in Los Angeles. One car contained sacks which were used previously for alfalfa meal, and LIVE ALFALFA WEEVILS WERE FOUND IN THESE SACKS. It was necessary to fumigate the entire shipment before the potatoes could be released for sale."

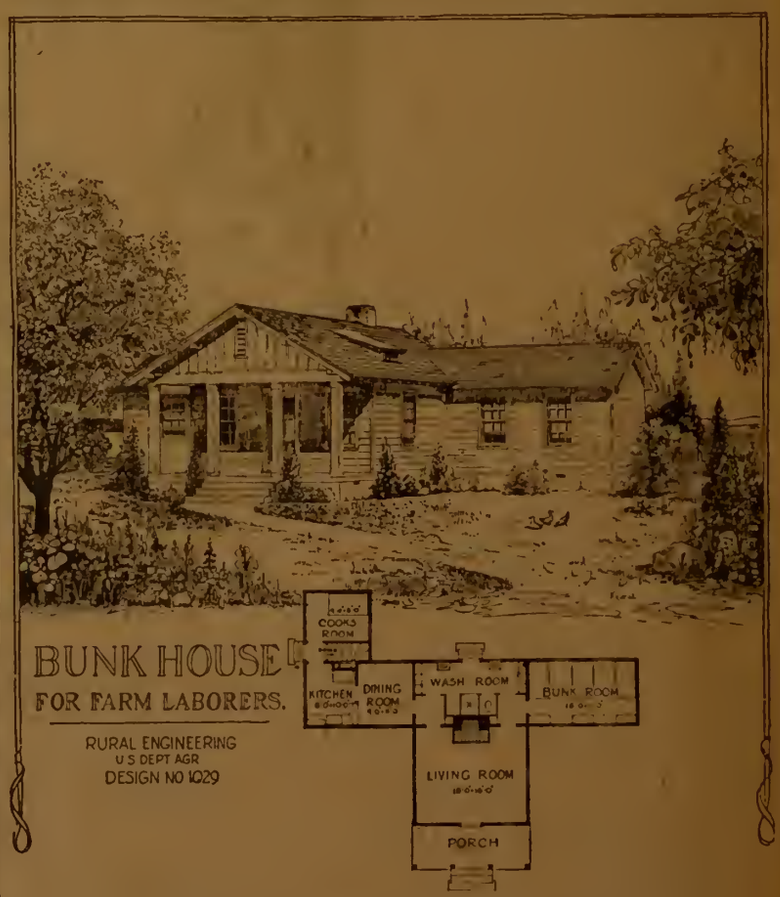
### CAMPERS ARE GUILTY

Another interesting item from the same news letter follows: "During the month of August, California quarantine inspectors on the Nevada-California line inspected 1257 automobiles which were found to be carrying camping equipment. Of this number 608 were from the alfalfa-weevil infested area. Insects were found in camping effects in 52 autos and 3 vehicles were found to be carrying contraband hay. In the detailed reports submitted there were noted license numbers from 36 different States."

### SHOULD BACK OFFICERS

While there are thousands of ways by which the introduction of this pest possibly might take place, those avenues which are known to be dangerous should be closed as tightly as possible. The efforts, therefore, of our State Director of Agriculture, G. H. Hecke, in using every means at his disposal to protect the State against the introduction of alfalfa weevil, should receive the undivided approval of the farming and stock raising interests, for without quarantine it is only a question of a very short time till the pest will be in our alfalfa fields, while with quarantine the evil day may be prolonged for years.

The more drastic the quarantine regulations, the better pleased should we be with the effort that is being put forth to protect some of our great agricultural industries.




*An Unusual and Practical Bunk House*

*This building was designed by the U. S. Department of Agriculture for the ranch on which it is desired to concentrate all accommodations for the help. The different departments are under one roof, yet ideally separated and arranged. The floor-plan tells the story. Is this not a convenient "plant"?*

## Luther Burbank

(Continued From Page 5)

WHOLE FOUR ACRES OF THE CAREFULLY CULTIVATED AND PRUNED ORCHARD. And better still, the fruit was smooth, clean, bright-colored and highly flavored, while that of the larger orchard was of inferior quality and infested with scab!

I have seen many well cultivated but unprofitable pear orchards made exceedingly productive by withholding all culture and pruning.

Perhaps cross-pollination is more necessary for the pear than for most of our orchard trees; since when planted alone in large orchards the trees of one variety often are unproductive. To obtain the best results, orchardists have adopted the method of planting a tree of some other variety at stated intervals throughout their orchards; this often insures more certain pollination.

## Hybrid Pears and Apples

THE apple and the pear rarely, if ever, hybridize naturally. But several years ago, desiring to see what the result would be, I carefully made some extensive experiments in crossing these two species. The most successful cross was obtained by utilizing the Bartlett pear pollen upon the Gravenstein apple.

From this cross several seedlings were produced that showed a marked difference among themselves, not only in general appearance, but also in growth. One of the seedlings seemed to grow fully as fast as an apple seedling; but most of them had a sickly, dwarfed appearance, and some of them died after having made a few feet of growth.

Three or four of those that lived were grafted into an apple tree, and, though maintaining moderate growth for several years, never were healthy and vigorous, and never gave any indication of blooming. ONE WOULD NATURALLY SUPPOSE THAT THE APPLE AND THE PEAR WOULD CROSS QUITE READILY AND PRODUCE AN EXCELLENT FRUIT; AND IT IS BY NO MEANS CERTAIN THAT THIS MAY NOT BE ACCOMPLISHED BY A FORTUNATE SELECTION OF VARIETIES FOR THE EXPERIMENTS.

### A HYBRID VARIETY

We have learned that usually when a tree or plant grows readily when grafted upon another, the two also can be successfully cross-pollinated. The pear does not thrive when grafted upon the apple; nor does the apple succeed when grafted upon the pear. This is a fairly well known fact, but one which many nurserymen and orchardists have learned only by experience; for, although the grafts will grow for a short time, they are never vigorous and sooner or later die without producing fruit.

ABOUT FIFTY YEARS AGO, HOWEVER, WHILE STILL RESIDING IN MASSACHUSETTS, I MADE A FAIRLY SUCCESSFUL GRAFT OF THE SECKEL PEAR UPON AN APPLE TREE. These grafts bore a fruit more highly colored and considerably larger than the ordinary Seckel pear; the shape of the fruit was slightly different, approaching somewhat the apple form. They also produced more abundantly and earlier than those growing on the pear root; but after bearing for two seasons the grafts weakened and began to die. As a commercial venture the experiment was a failure, but the results attained proved of considerable scientific interest.

As there are many thousand varieties, both of the pear and the apple, each with its own individual tendencies and characteristics, an exceedingly inviting field is open to the careful and patient experimenter both in grafting and crossing these two distinct, but nevertheless closely related, species. If the proper combination can be successfully effected, the result no doubt will be profoundly interesting and valuable.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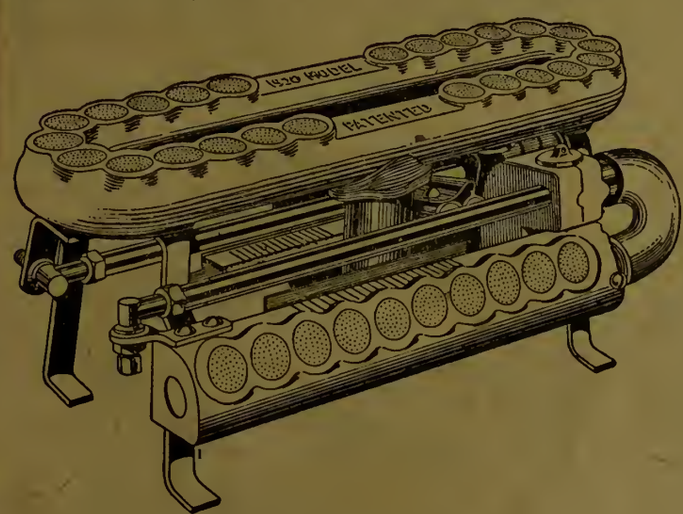


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We would be pleased to go into the matter further with anyone who may be interested in becoming a member of our live-wire dealer organization.

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*Milk Goats*—are offered for sale through ORCHARD and FARM'S "Classified Market Place." See pages 30 and 31.

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FEED FOR SWINE, STOCK AND POULTRY

ASK YOUR DEALER

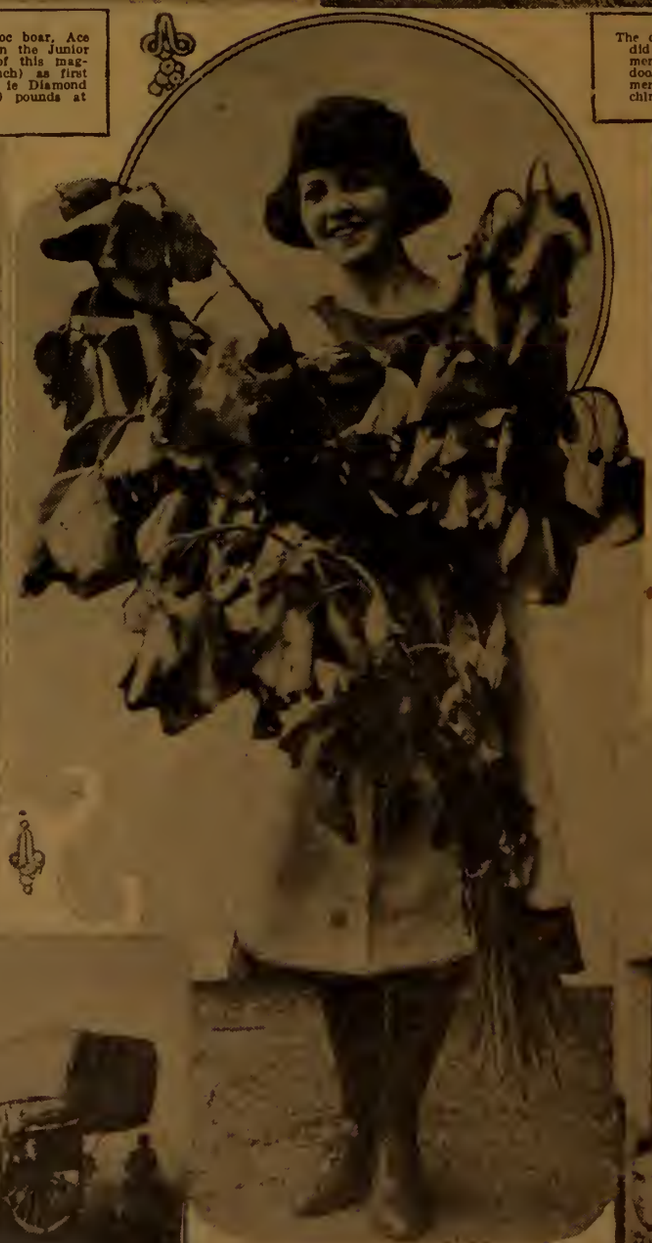
*Milk Goats*—are offered for sale through ORCHARD and FARM'S "Classified Market Place." See pages 30 and 31.

# Here and There With the Camera Man

Frank Curtis, of Chino, stands near the beed of his Duroc boar, Ace of Pathfinder Second, Grand Champion over all breeds in the Junior Classes at the Riverside Fair. Frank won the mother of this magnificent animal ("Windsor Rose Third" of Windsor Ranch) as first prize in a Farm Bureau bog-fattening contest. The sire is Diamond Bar's "Ace of Pathfinders." Frank's boar weighed 800 pounds at 17 months. The young breeder is only 13 years of age.

The owner of this implement shed had the right idea, but why did he leave all the tongues hanging out, exposed to the elements? If he had built his shed just a little wider and put doors on the front—but then, why be critical? Too many farmers do not even provide this much protection for their machinery!

This man's hobby is training steers. Perhaps some day he will forsake the ranch for the circus ring! This is just one of the many tricks he has taught his animals. Rolling a barrel about the barnyard is play for the young bullock.—International Photo.



Miss Dorothy Dee is holding some hemp plants, produced in Southern California. This new crop gives promise of interesting possibilities for profit. Can you picture a California cowboy roping calves with a home-grown riata?—L. A. Chamber of Commerce Photo.

We are just a little suspicious of this one! If the picture had been taken in California, it would be different, but we are inclined to distrust a New England photographer who submits such a view. Mrs. W. J. Perrin of Hardwick, Vermont sends this picture—without comment.

This is the way farm products and supplies are hauled in isolated sections of South America. Note the size of the giant wheel as compared with the man on horseback! Two wheels are attached to the front axle, and four to the rear axle on either side. (A tip for the driver who sticks in the mud with a heavy load). The wagon is an American, I. H. C. product.—International Photo.

This Temple of Agriculture is said to be the first of its kind in the world. It is the official home of the farmers of the Elephant Butte irrigation district, Dona Ana County, New Mexico.

# Prudence Penny's Article

(Continued From Page 11)

find it difficult to give as much attention to personal appearance as they should like, nevertheless I cannot emphasize too strongly the importance of this factor. It means much in satisfaction and efficiency, not to mention the effect upon others.

If you keep yourself in condition you can do better work. If your hands are cared for, insensibly you care more for the rest of your body. If you brush your hair and keep it clean and fresh all the time you will bathe your body more and that leads to doing away with sloppy house dresses and down-at-the-heel shoes. This sort of thing aids one in being an efficient woman, whether working in home or office or factory.

Again, I understand whereof I speak. And deeper than everything else, more important than system and planning, economy and study, is the care of one's soul That, to me, is the greatest thing, for if a woman is happy; if she develops a fondness for her work and makes up her mind that marriage has brought to her the job of being a homemaker; if she is willing to face the troubles and trials knowing that always she can find strength from the Source that faileth never, then she will have laid for herself a foundation that will stand against the storms of hard work and illness, loss and disaster of any kind.

# Last Chance for Cash Prizes

## ORCHARD and FARM System Contest Positively Closes January First. Prize-winners to be Announced in February Number

JUST one more chance to enter this interesting contest, in which a number of subscribers are going to receive THE "EASIEST MONEY" THEY EVER MADE. Remember, you must act at once! Don't let this chance slip by to make $25 for a few minutes' work. The earlier your entry is received the more simplified will be the work of clerks and judges.

### Generous Cash Prizes

***Easy to Win!***

**IMPORTANT—Wives and families may take part if head of family is or becomes a subscriber to Orchard and Farm.**

| | |
|---|---|
| **For the best entry dealing with any branch of *deciduous fruit (and nut)* production** | **$ 15.00** |
| **For the best entry dealing with *citrus* fruits** | **15.00** |
| **For the best entry from a *dairyman*** | **15.00** |
| **For the best entry from a *livestock breeder* (other than a dairyman)** | **15.00** |
| **For the best entry from a *poultry* raiser** | **15.00** |
| **For the best entry from a *general farmer*** | **15.00** |
| **For the best *miscellaneous* entry, covering small fruits, truck gardening, or some specialty not included above** | **15.00** |
| **Total regular prizes** | **$105.00** |
| **IN ADDITION, the prize winner who is adjudged to have submitted the best all-around entry of any class will be awarded an extra** | **$ 10.00** |
| **The prize winner adjudged to have submitted the second best all-around entry of any class will be awarded an additional** | **5.00** |
| **Then all the remaining entries will be judged as to general merit and three (3) will be awarded $3 each** | **9.00** |
| **Finally, all remaining entries will be judged as to general merit and six (6) will be awarded $1 each** | **6.00** |
| **Total cash prizes** | **$135.00** |

**Thus it will be seen that it is possible to win $25 just for a few minutes' pleasant, profitable work. And in addition to competing for a prize, each contestant will benefit himself by reviewing the past year's work and laying plans for the coming year. There are so many prizes that many who do not win the main awards will profit. And in case of a tie, equal prizes will be awarded each contestant in other words, the prizes will be increased so that each winner may receive the full amount. Read the directions and write the SYSTEM CONTEST Editor today! Use coupon below.**

There are several different classes with equal opportunities for all. Every regular subscriber (or member of family of a subscriber) may take part. The one dollar that is paid for a subscription to ORCHARD and FARM may be returned many times over in prizes. ORCHARD and FARM conducts contests of various kinds regularly. But undoubtedly this one requires the least effort of all! You simply fill in a blank form, mailed to you on request.

SYSTEM IN PLANNING WORK

The form we shall send you is to be used for outlining a plan for work by months, starting with January and ending with December, 1922. In entering the contest, therefore, you will be helping yourself, for it is a good idea at this time of year to look ahead and make plans for the future, as well as reviewing the year now closing.

But the "big idea," of course, is to secure by this means data applying to all branches of food production in California which we can publish from month to month as a guide to subscribers engaged in the same line of production.

We expect to hear from deciduous and citrus fruit growers, general farmers, livestock breeders, dairymen, poultry raisers and others. Therefore we have arranged a schedule of prizes covering the different branches of California agriculture. In addition there will be a grand prize for the best entry of any class.

NOTE RULES CAREFULLY

Only actual, paid-in-advance subscribers may take part. But any reader not a subscriber may enter by sending one dollar to cover a year's subscription. Note the attractive prizes offered. All entries must be submitted by January first. Watch your magazine for news of progress of the contest.

Use the coupon below or simply send your name and address with request for "System Contest" blanks. Do it now, before you forget. There is no obligation. All you have to do to enter the contest is to fill in the form and return it. No personal information asked. Your name will not be published if you so request.

A committee of impartial judges, to be announced later, will select those entries which they consider most valuable and checks will be mailed to the winners. Full instructions will be mailed with the blanks. WRITE TODAY! Address "System" Contest Editor," **Orchard and Farm**, 1111 South Broadway, Los Angeles. Use coupon below.

NAME .....

ADDRESS (Town or City) .....

(R. F. D. or Street Number) .....

TO SYSTEM CONTEST EDITOR: Please send blanks and instructions for competing for cash prizes offered in November number of Orchard and Farm, 1111 South Broadway, Los Angeles.

## Large Sums of Money in Old Kettles

Don't throw away any more household or cooking utensils on account of leaks in them, as a South Dakota man has discovered a harmless powder mixture which, after being mixed into putty form, becomes hard as stone and successfully mends leaks in Agate, graniteware, Aluminum, Copper, Brass, Iron, Tinware and Plumbing. Even a child can mix and apply it, as it requires neither heat, acid, nor tools and will not melt.

In order to prove its great value to every reader of Orchard and Farm he offers, if you will write within one week from date you receive this paper to mail you one large regular full-size 50-cent package of this Mend-a-leak powder, with full directions for mixing and using, enough to mend 30 to 40 ordinary leaks, by return mail for only 25 cents, or three packages postpaid for any 60 cents, silver or stamps, or six packages post paid for only $1.00. If silver is sent, wrap well in paper and use strong envelope. Guaranteed as represented or money refunded. Address all orders to Allen Watson, B233, Farmingdale, S. Dak.

This should be a big money getter for live agents.—Advertisement.


## —the gift for her

What a practical present for the kitchen—these three beautiful and useful aluminum utensils, nestling all spick and span in their bright holiday container. Each day of the year she will be reminded of your thoughtful selection, for hardly a meal can pass that does not find some use for the generous-sized Stew Pan, Sauce Pan or Tea Kettle. The whole set costs but

**$5.50 postage prepaid**

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tell us to include in the shipment a three-pound box of our exquisite

**Bonbons and Milk Chocolates**

Made of the choicest and purest materials by master candy makers, they possess an individuality in taste that will surely please you. Three-pound box, daintily packed, $2.25 postpaid.

**H. G. CHAFFEE CO.,**

**912 E. THIRD ST. LOS ANGELES, CALIF.**


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***Both for One Year, $1.00***

**Save $1.75**
Mention Club No. 15
Collier's Weekly, $2.50 a year
McCall's Magazine, $1.00 a year
*ORCHARD and FARM, $1.00 a year*
***All Three for One Year, $2.75***

**Save $1.15**
Mention Club No. 16
American Magazine, $2.50 a year
*ORCHARD and FARM, $1.00 a year*
***Both for One Year, $2.35***

Each magazine may be sent to a different address if desired.
Send all orders to ORCHARD and FARM, Los Angeles.

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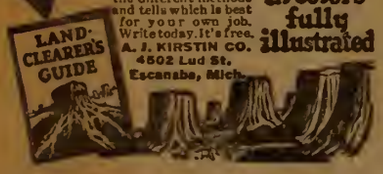




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No matter how bad your ailment, or how long standing, we will be pleased to have you try it at our risk. For full information write today—not tomorrow. Radium Appliance Co., 785 Bradbury Bldg., Los Angeles, Calif.


# HELPFUL HINTS for THE HOUSEWIFE

Edited by Isabel Sinclair

O gift of God! O perfect day,
Whereon shall no man work, but play,
Whereon it is enough for me,
Not to be doing, but to be!

Through every fibre of my brain,
Through every nerve, through every vein,
I feel the electric thrill, the touch
Of life, that seems almost too much.

DEAR FRIENDS:

Christmas candies are as necessary on that day of all days as old Santa himself, and as almost everyone partakes of sweets at this time, it is best always to provide the purest kinds. Many enjoy making their Christmas candies, and truly an attractively-decorated box of home made candy is a most acceptable gift. One ingenious housewife saves her pound-tin coffee cans, enamels them in different colors, and decorates them with a spray of painted flowers or a conventional design, and packs them with delicious candies of her own making.

Following are some recipes that are both economical and easy to make, yet extremely delectable. Wishing you one and all the merriest of Christmases and the Happiest of New Years,

Sincerely,

Isabel Sinclair

### ENGLISH WALNUT CANDY

2 cups brown sugar
1 tablespoon butter
1 cup broken English walnuts
1 cup milk

Boil milk with sugar and butter until it will form a ball in cold water. Remove from fire and beat until it begins to thicken, then add the nut meats and pour into buttered pan. Cut in squares.

### PRALINE CREAMS

2 cups sugar
¼ teaspoonful cream of tartar
2 cups milk
1 cup maple syrup
2 cups pecan meats

Heat the ingredients to the boiling point, stirring until sugar is dissolved. Boil to soft ball stage, remove from heat, add nuts and cool by placing the vessel in a pan of cold water. When cool beat until creamy and drop from a teaspoon on paraffin paper.

### STUFFED DATES

Remove stones from dates and fill with cocoanut, moistened with vanilla extract. Press dates into shape and roll in a mixture of finely chopped nut meats, sugar and cinnamon.

### FRUITED SEAFOAM

2 cups brown sugar
½ cup water
1 egg-white beaten
1 pinch salt
½ teaspoon vanilla
½ package cocoanut
½ package stoned and chopped dates

Cook sugar and water until it forms a soft ball in cold water. Beat white of egg and salt until stiff, add boiling mixture and beat vigorously all the time until nearly cold, then add dates, cocoanut and vanilla. Drop by spoonfuls on greased platter.

### COCOANUT CONES

2 lbs. lump sugar
1 cup water
Cream of tartar
½ teaspoon almond extract
Cocoanut

Dissolve sugar in water, add pinch of cream of tartar and boil without stirring until it snaps when tested in cold water. Stir in enough cocoanut to make it thick, adding the extract. Shape in neat cones and place on waxed paper to dry.

### CREAM ROCKS

1 pound sugar
½ teaspoon cream of tartar
1 cup cocoanut
½ cup water
Few drops vanilla
2 squares melted, unsweetened chocolate

Boil sugar, water and cream of tartar three minutes, remove from fire and stir until the syrup becomes cloudy, then add cocoanut. Flavor half of mixture with extract and second half with chocolate. Drop from spoon in rocky cakes on waxed paper.

### GLACED RAISINS

Cook one pound of sugar until it melts, stirring constantly while melting. An iron frying pan is best. Split large seeded raisins, put a small piece of nut meat in the center of each, then dip one by one on a fork into the syrup and allow to drain on waxed paper.

## The Home Library

MANY people, when desiring to establish a library, buy books by the set and soon find themselves weary of their choice long before they have finished reading the last volume. Of course, if it is possible to buy books by the hundred and there is no danger of having to move them about frequently, the purchaser may with propriety give way to his whims. And by this method it does not take long to fill space.

However, the average reader should buy books with the greatest possible discrimination and care, purchasing one at a time and reading them as they are bought.

The complete works of very few authors are worth reading, even Kipling, Scott and Dickens having mediocre products and "weak spots" that perhaps would interest only the research student. Therefore, it is advisable to choose those books which you desire always to have as companions on your book shelves, for books truly are our best friends, teaching and broadening the outlook and taking one out of the commonplace. "Buy a book at a time, but buy often" is a good slogan.

## Spanish Jelly

SOAK two tablespoonsful of granulated gelatin in one-half cupful of cold water for 20 minutes. Then add one and three-fourths cups of boiling water and stir thoroughly. Add three-fourths cups of sugar, three tablespoonsful lemon juice and one and one-half cupfuls of loganberry juice. Strain and pour into a cold, wet mold. When cold, but before it begins to congeal, add one cupful of seeded raisins and one-half pound of marshmallows cut in halves.

## To Mend Cooking Utensil

IF the favorite cooking utensil springs a leak when it is needed most, cut a square of heavy wrapping paper somewhat larger than the hole, spread a thick paste of flour and water on one side and press it smoothly over the hole and let dry. This patch will stand a great deal of heat without burning off.—G. Fitzgerald, Los Angeles. (H)

## Little Helps

OLD stockings cut in narrow strips and tied around a stick make an excellent soft, lintless dust mop. These strips also make good stuffing for porch pillows.

A few cloves put in the kettle of fat in which doughnuts are cooked, will greatly improve their flavor.

If the clock stops or seems to stiffen up, set a small uncorked bottle of kerosene in it. The fumes will loosen the dirt that is clogging the works.

To get rid of flies, put a tablespoonful of cream and the same amount of ground black pepper in a saucer darken the room except for one light spot. Set the saucer in the light spot and watch results.—George Fitzgerald, Los Angeles. (H)

## To Clean Feathers

To clean feathers, make a good suds of naphtha soap and lukewarm soft water. Let the feathers lie in this about 15 minutes, occasionally drawing them gently through the hand if the soiled places do not come out of themselves. Rinse thoroughly in lukewarm water, putting a very little bluing in the last water. Dry the feathers by shaking near a stove where the air is warm but not hot or hang them by the stem and shake occasionally.

Note—Compare these patterns, as to price and style, with those obtainable elsewhere!

# PRETTY COSTUMES
## Selected by Isabel Sinclair

*These costumes are simple and can be made readily by the home dressmaker from the instructions provided. Send 15 cents in silver or stamps for each pattern desired. Address Pattern Department, Orchard and Farm, 1111 South Broadway, Los Angeles. Give full name and address.*

**3789—Lady's House Dress**
Cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. A 38-inch size requires 5⅜ yards of 36-inch material. The width at the foot is aoout 2¼ yards. Price 15 cents.

**3462—Lady's Dress**
Cut in 6 sizes: 34, 36, 38, 40, 42 and 44 inches bust measure. A 38-inch size will require 6½ yards of 44-inch material. The width of the skirt at lower edge is 1⅞ yards. Price 15 cents.

**3791—Girl's Coat**
Cut in 5 sizes: 6, 8, 10, 12 and 14 years. A 10-year size will require 2¾ yards of 48-inch material. Price 15 cents.

**3801-3793—A Chic and Charming Design**
Guimpe 3801 cut in 7 sizes: 34, 36, 38, 40, 42, 44 and 46 inches bust measure. Dress 3793 cut in 8 sizes: 34, 36, 38, 40, 42, 44, 46 and 48 inches bust measure. A 38-inch size requires 2⅝ yards of 36-inch material for the guimpe, and 3⅜ yards for the dress of 40-inch material. The width at the foot is about 2 yards. Two separate patterns, 15 cents for each pattern.

**3784—Misses' Dress**
Cut in 3 sizes: 16, 18 and 20 years. An 18-year size requires 5⅞ yards of 40-inch material. The width of the skirt at the foot is about 2 yards. Price 15 cents.

**3505—Child's Short Clothes Set**
Cut in 4 sizes: 6 months to 1 year, 2, 3 and 4 years. A 1-year size will require 1¾ yards for the dress, 1⅜ yards for the petticoat and ⅝ yard for the drawers of 36-inch material. Price 15 cents.

**3400—An "Easy to Make" Apron**
Cut in 4 sizes: Small, medium, large and extra large. A medium size will require 2¾ yards of 27-inch material. Price 15 cents.

**3794—Girl's Dress**
Cut in 4 sizes: 8, 10, 12 and 14 years. A 12-year size will require 1¾ yards of 27-inch material for the guimpe and 3⅜ yards for the dress. Price 15 cents.

**3756—Girl's Dress**
Cut in 4 sizes: 4, 6, 8 and 10 years. A 6-year size will require 2⅝ yards of 27-inch material. Price 15 cents.

**CATALOG NOTICE**
Send 15 cents in silver or stamps for our up-to-date fall and winter 1921-1922 catalog, containing over 500 designs of ladies', misses' and children's patterns, a concise and comprehensive article on dressmaking; also "Some Points for the Needle." Illustrating 30 of the various simple stitches. All valuable hints to the home dressmaker.

### Use Coupon in Ordering Patterns

Herewith find.... .. cents, for which send me the following patterns:

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Close your eyes and imagine the smile of joy on the face of your friend upon receiving a gift every month that reminds them of the giver.

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Send all orders to Orchard and Farm, 1111 So. Broadway, Los Angeles, Calif.

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Mention Club. No. 13

Our price **$1.00** for both

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Orchard and Farm, for 12 months, 10 cents per copy, $1.00 per year.
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WE WANT "GO-GETTERS" Sutter Basin is ready for "Go-Getters." It is a practical farming project in crops today. Deep, rich soil with irrigation and drainage system, river and rail transportation. In the heart of the Sacramento Valley. Very liberal terms to men who know how and will work. Write today. SUTTER BASIN COMPANY, California Fruit Building, Sacramento, Cal.

6¾ ACRES foothillranch near Walnut Creek, Contra Costa County, Cal. Sandy loam soil; peach and other trees; small house, barn, spring, water piped to house; near Electric road; fine view; suitable for chickens and berries; $1600. Terms: $300 down; $25 month; discount for cash. Guy L. Putnam Co., Walnut Creek, Cal.

PARADISE IRRIGATION DISTRICT grows unexcelled walnuts, almonds, figs, apples, pears, grapes, berries, poultry. Healthful climate; electricity, water telephone. Large or small tracts; prices less than elsewhere. C. H. NIELSEN, PARADISE, BUTTE CO., California.

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FOR SALE: 80 acres good land all under irrigation. Close to excellent prune orchard. Close to good schools and railroad. $125 per acre. Terms. Box 12, Route 3, Chico, Cal.

THE NICEST RURAL HOME in Arizona. Irrigated forty. Free bus to graded and high schools. Mild winters. No hot nights in summer. R. W. Boyle, St. David, Arizona

## SAN JOAQUIN VALLEY

22 ACRES, San Joaquin Valley, $1320; $420 down, balance on time. 10 acres, 2 building lots, Florida, $500 cash. 1075 32nd St., Oakland, Cal.

## FARMS WANTED

WANT to hear from owner having farm for sale; give particulars and lowest price. John J. Black, 110th Street, Chippewa Falls, Wisconsin.

WANTED—To hear from owner of good ranch for sale. State cash price. Full particulars. D. F. Bush, Minneapolis, Minn.

I WANT WESTERN FARMS for cash buyers. Will deal with owners only. R. A. McNown, 367 Wilkinson Bldg., Omaha, Neb.

WANTED—To hear from owner of land for sale. O. K. Hawley, Baldwin, Wisconsin.

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CALIFORNIA CHOICE PROPERTIES SALE OR TRADE

State your wants in first letter. California Realty Co., Hearst Bldg., San Francisco.

FARMS; lands in large or small tracts. If you want to buy, sell or exchange, write for price list. Frank Dike, Box 792, San Francisco Cal.

## BUSINESS OPPORTUNITIES

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BOOKS BOUGHT—Choice and rare books [illegible] Dawson's Book Shop, 518 S. [illegible] Angeles. Phone 63260.

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A wonderfully good producer. Beautiful, ornamental, evergreen, unsurpassed for windbreak. $2.00 brings you four trees. Original Carob Nursery, Colton Ave., San Bernardino, Cal.

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## FIELD AND GARDEN SEEDS

FOR SALE—Sweet Spanish Riverside Onion Seed. Proven high germination, 60c per oz.; $5 per pound. A. Juckett, 3727 N. Griffin, Los Angeles.

GERMAIN strain Hairy Peruvian Alfalfa seed, 20c lb. Common, 16c. Buy first class 1921 seed direct from grower. J. B. Keim, Ripley, Cal.

OUR Introduction—Wonderful New Hybrid Alfalfa. Write J. L. Lawson, Reliable Tree and Seedman, San Jose.

## STRAWBERRY PLANTS

Progressive Everbearing Strawberry plants, $1.50 hundred. Improved new Oregon and Marshall. $5.00 thousand. Sam Morell, Route 2 Canby, Oregon.

CERTIFIED Strawberry Plants, Improved New Oregon, Gold Dollars and Progressive Everbearing. G. H. Mitchell, Canby, Oregon.

## BLACKBERRY PLANTS

THORNLESS BLACKBERRY PLANTS for sale. Cory Mammoth and Burbank varieties. Four plants $1.00. Write for quantity prices. Place your order now for Jan. and Feb. delivery. Frank Drew, Box 445, R. 1, Redondo Beach, Cal.

CORY THORNLESS Blackberry for extra good, strong plants that will have berries next summer if planted this fall. Write to Wm. Mortenson, Lodi, Cal.

## AUTO TRAILERS

$35 to $600

2 and 4 Wheeled Auto Trailer Co.
1322 Central Ave.
ADDRESS DEPT. A. Los Angeles.

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AUTOMOBILE Owners, Garagemen, Mechanics, Repairmen, send for free copy of this month's issue. It contains helpful, instructive information on overhauling, ignition troubles, wiring, carburetors, storage batteries, etc. Over 110 pages, illustrated. Send for free copy today. Automobile Digest, 606 Butler Bldg., Cincinnati, Ohio.

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AMBITIOUS WRITERS, send today for free copy America's leading magazine for writers of Photoplays, Stories, Poems, Songs. Instructive, helpful. Writers' Digest, 698 Butler Bldg., Cincinnati.

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### PAINTS—WALL PAPER SALE

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| House paints (22 shades) | $2.45 gal. |
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"The Store of Personal Service"

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FOR SALE—Save your roof for 15c a gallon with our rich natural asphaltized roofing paint, the best roofing and preservative paint under the sun. Why pay more for acid-treated asphalt that eats your roof? Equally good for shingle, paper or metal roofs. Prolongs the life warped shingles, rusted iron and deteriorated paper roofs. Mail orders, barrel lots, promptly shipped. WOOLNER OIL CO., 4th and Commonwealth, Los Angeles.

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ROOFING PAPER, 1sts, complete, 1-ply, $1.25; 2-ply, $1.60; 3-ply, $2.20.
Lead and oil paint ........ $2.00
Roof paint, special ........ 40c
Prompt deliveries of mail orders.
ANGELUS ROOFING & PAPER CO.,
764-768 South San Pedro Street,
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FOR SALE—Registered grade Toggenburg milk goats and kids. For service, El Rey de la Estrella, No. 7406. Pure bred naturally hornless Toggenburg buck. Service fee $5. Ed Thomas, Rodeo, Cal.

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SPECIAL—Weanlings sired by a son of King Orion Jr., who was second prize winner at the National Swine Show, 1919, and grand champion San Francisco Land Show, 1919. H. E. BOUDIER, Napa, Cal.

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MILK RECORD CHARTS FREE. Write ORCHARD and FARM, Los Angeles, Cal, for a year's supply. Sent postpaid to any address in the United States, FREE. Only a few left.

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GET maximum income from your land by having your irrigation and drainage problems properly attended to by the Engineering Service Company, 1316 Washington Building, Los Angeles, Cal.

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## SECOND HAND MATERIAL

EVERYTHING NEW AND SECOND HAND —All kinds stoves, plumbing supplies, pipe, farm tools a specialty. Noah's Ark, 609 E. 1st st., Los Angeles, Cal.

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Made of 12-oz. brown NEW WATERPROOF canvas, 6x12 ft., $5.00. Any size made to order, 7c sq. ft. WEEKS-HOWE-EMERSON CO., 90 Market St., San Francisco. Cal.

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"I ran a classified ad in your October number and received so much business that it will keep me busy up until Christmas.—B. Bryan, Camp Baldy, Cal."

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### REAL RABBITS

All breeds
Guaranteed stock
Raised Right
Kept Right
Prices Right

### RABBIT FARM

3723 Moneta ave. Los Angeles, Cal.

NEW ZEALAND REDS—Splendid type 3 months old, $5.00 pair, $6.50 trio. Armstrong's Rabbit Farm, Petaluma, Cal.

PEDIGREED FLEMISH GIANTS—No fancy prices. Mrs. T. Beeching, 1578 W. 46th St. Los Angeles, Cal.

FOR SALE—Carneaux pigeons, real squab raisers, $2.50 to $5.00 pair. Palms Squab Ranch, R. 2, Box 237, Inglewood, Cal.

## FARM TRACTORS, MACHINERY

MUST BE SOLD—We have new Beeman Tractor with belt pulley, magneto, rims, 8-inch plow and cultivator that must be sold to satisfy an account. Its value is $436 50. The first order with deposit of $25 00 gets the outfit for $347 00 It is fully guaranteed. H. V Carter Motor Co., 52 Beale Street, San Francisco, Cal.

DO IT ALL hand tractor with ex. rims, plow and cultivator attachments. Make offer. 239½ Florida St Vallejo.

WANTED: Handy farm truck, iron, suitable for spray pump and tank State condition and price. J. G. Weltl, 1273 11th Ave., San Francisco, Cal.

## TOBACCO FOR SALE

KENTUCKY LEAF TOBACCO—3 years old, nature cured Don't send a penny pay for tobacco and postage on arrival. Extra fine quality chewing or smoking, 10 lbs., $2.50; medium quality smoking, 10 lbs., $1.00. FARMERS' UNION, Hawesville Ky

HOMESPUN Smoking and Chewing Tobacco, collect on delivery. 10 pounds, $2.50; 20 pounds, $4.00. Ford Tobacco Company, Mayfield, Kentucky.

TOBACCO Kentucky's pride Mild and mellow. 10 lbs. $2.60, 20-lb., $4.00. Farmers' Club, Mayfield, Ky

HOMESPUN chewing and smoking tobacco 5 lbs., $1 25, 10 lbs. $2.50, 20 lbs, $4 00 Farmer's Union, Mayfield, Ky

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### "We Pay the Postage"

Don't Take Chances
Have your Kodak finishing done by experts.
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## GUINEA PIGS, MICE AND RATS

GUINEA PIGS for sale—all colors—prices right. Also will buy. Write J. E. LOVE, 1012 Brooklyn Ave., Pasadena, Cal.

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## AGENTS WANTED

WANTED—SALESMEN WHO CAN SELL high grade, dependable nursery stock exclusive territory; outfit furnished and cash advanced weekly, commission basis. Address Albany Nurseries, Inc., Albany, Ore.

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EARN $25 to $50 weekly in spare time selling hosiery direct to consumer from [illegible] Exp. unnecessary Bristol Hosiery Mills West Coast Branch, 430 S. Broadway Los Angeles Cal.

## HOG CHOLERA CURE

FOR SALE, REASONABLE Formula U. S. and Canadian Registered Trade Mark of a most efficient Hog Cholera Powder, Preventative and Cure. PAUL HUTH, 5 [illegible] Place, San Francisco.

## BICYCLES

BIG SAVING—We have 100 rebuilt bicycles all sizes. We will sacrifice as a special Christmas offer Vitalic Tires $[illegible] AD VANCE BICYCLE SHOP, 608 [illegible] Street, Los Angeles, Calif.

# Farmers' Classified Market Place

## POULTRY

THE Schiotthauer Single Comb White Leghorns have been bred since 1908 and all breeding stock has been carefully hoganized to insure heavy laying and strong, hardy chicks. Safe delivery and full count guaranteed. For more information write for free booklet. White Plumage Poultry Farm & Hatchery, Exeter, Cal.

ALL VARIETIES of baby chicks hatching each Monday and Wednesday. Ducklings each week. Barred Rocks, Rhode Island Red and White Leghorn pullets; prices start at $1.00 each. Send your order now for fall chicks. Price list now ready. Complete line of poultry supplies and remedies. All kinds of puppies, kittens, birds and pet stock.

**FANCIERS EXCHANGE**
640 So. Main St. Los Angeles, Cal.

S. C. WHITE Leghorn baby chicks. From trapnested Tancred and Tom Barron roosters. Their mothers have an egg record of close to 300 per year. We guarantee safe arrival and full count. 15 years shippers of baby chicks. Literature and prices on request. Booking orders NOW for FALL of 1921 and SPRING of 1922. HICKS ELECTRIC JUBILEE HATCHERY, Petaluma, Cal. Route 2, Box 22.

PETALUMA HATCHERY, established 1902 by L. W. Clark. Chicks every Monday and Thursday. White and Brown Leghorns from heavy laying free range stock. We positively guarantee safe arrival and full count of good, strong chicks and no questions asked. Send for prices and terms. L. W. CLARK, Petaluma, Cal., Box 155.

BARRED PLYMOUTH ROCKS—"Nothing better in poultry." Wonderful layers. Hens and pullets for sale; also choice cockerels that will improve your flock. Now booking orders. Have made a specialty of Barred Rocks for over twenty years; "that's why" our birds win at all leading shows. Catalog free. Vodden's Rockery, Los Gatos, Cal.

BABY CHICKS—Single Comb White Leghorns, Black Minorcas, from heaviest laying (Hoganized) stock. Safe arrival guaranteed. Also Mammoth Pekin ducklings. Booking orders now for 1922. MORGAN'S HATCHERY, 5 Wolfe St., San Francisco, Cal.

WHITE LEGHORN BABY CHICKS from heaviest laying (Hoganized) stock. Safe delivery live, vigorous chicks guaranteed. No money in advance; pay on delivery. Prices on request. Established 1898.
MUST HATCH INCUBATOR CO.,
432 Seventh St. Petaluma, Calif.

**DAY-OLD PULLETS**

Guaranteed S. C. White Leghorn day old pullets are a howling big success. Testimonials and references on request. Established 1912. Eureka Hatchery, 628 D St., Petaluma, Cal. Jas. K. Hirst, Prop.

BOOK YOUR ORDERS FOR BABY CHICKS NOW. JANUARY DELIVERY. ROCKS, REDS AND S. C. WHITE LEGHORNS. ALL HATCHED FROM OUR OWN STOCK. MATURE BIRDS FOR SALE. E. A. FISCHER POULTRY RANCH, BELLVERNON AND EUCLID AVE., COMPTON, CAL.

BROWN and White Leghorn baby chicks and Rhode Island Reds from carefully selected, heavy laying stock. Safe arrival of full count, live, strong chicks guaranteed. Order early. Write for special prices for January and February. Anderson's Hatchery, Modesto, Cal.

BABY CHICKS—Pekin ducklings, Single Comb White Leghorns, Black Minorcas from heaviest laying stock. Safe arrival guaranteed. Booking orders now for 1922. Morgan's Hatchery, 5 Wolfe Street, San Francisco, Cal.

WARD'S SINGLE COMB REDS
Win at the 1921 State Fair, 3 firsts, 2 seconds, 2 thirds, 9 specials. Reds largest class in show. Hatching eggs, cockerels and pens. WARD'S POULTRY FARM, 39-B South Lincoln ave., San Jose, Cal.

WHITE LEGHORN Baby Chix from Petaluma's heaviest producing stock. We guarantee safe arrival. Literature on request.
PIONEER HATCHERY
418 Sixth Street. Petaluma, Calif.

BABY CHICKS—Booking now for 1922 delivery. Order early. White Leghorns, R. I. Reds, Brown Leghorns, Barred Rocks. Write for circular. Stubbe Poultry Ranch & Hatchery, P. O. Box 67-C, Palo Alto, Cal.

ANCONAS. Our sixth year. Cockerels, single birds, $3.50 and $5.00. Good color, penty of pep. Satisfaction guaranteed. A. S. WILKINSON, Winton, Calif

WATCH US GROW. Fall chicks, Rhode Island Reds, B. Rocks, White and Brown Leghorns and Anconas. E. W. Oblsn, Campbell, Cal.

## POULTRY

CELLULOID LEG BANDS
Reduced below pre-war prices.

| | 100 | 250 | 500 | 1000 |
|---|---|---|---|---|
| For Leghorns | .75c | $1.70 | $2.90 | $4.75 |
| For Rocks | .85c | 1.90 | 3.25 | 5.75 |

Feed Right—Make Bigger Profits
Hart's feeding formulas and methods will give you the highest egg yields and save you $10 to $15 a ton on mash and scratch. Positively no mites this summer and roosts haven't been painted for 2 years. Plans for Hart's New Combination Colony and Brooder House, which costs $10 to build, including heater, for 100 chix, given free with Hart's Poultry Book at $1.00. Money refunded if not satisfied with the book. You can't lose. Big value. W. H. Hart, Rt. 3, Box O, Beaverton, Oregon.

**DAY-OLD PULLETS**

Here is your chance to get day-old White Leghorn and Ancona chicks, guaranteed at least 90 per cent pullets. We are taking orders fast for Spring delivery. We also have R. I. Red and Barred Rock chicks, but do not separate the sexes. All chicks are from strictly thoroughbred, laying stock and are hatched right and shipped by special delivery parcel post. Send for prices and get your orders in at once.

**Orange County Hatchery**
Santa Ana, Calif.

1922 MISSION HATCHERY 1922
Early chicks are the ones that pay first and best. Our special letter will tell why we think so. Write for it and particulars of our White, Brown Leghorns, Black Minorcas, R. I. Reds, White and Barred Rocks. Our matings are pure bred, heavy laying strains, quality good, service good; reasonable prices. Write your needs and see if we cannot get together.
MISSION HATCHERY
Box 7, Campbell, Calif.

WHITE LEGHORN BABY CHICKS from heaviest laying stock for Spring, 1922, delivery. January prices, $5.00 per 25, $9.50 per 50, $18.00 per 100 Special prices 500 and 1000 lots. Safe delivery. Live vigorous chicks guaranteed. No money in advance, pay on delivery. Order early chicks now and realize big broiler profits. Established 1898. MUST HATCH INCUBATOR CO.
432 Seventh St. Petaluma, Cal.

1922—CHIX—1922
R. I. Red, best early broilers and layers, ours are mated with large eastern cocks. Barred Rocks, Black Minorcas and White Leghorns, bred for eggs and size. Price same as others. Expressage or Parcel Post prepaid on January deliveries. Thousands every week. Denton Poultry Yards, Box 7, Campbell, Cal.

BABY CHICKS, EGGS—Hoganized White Leghorns (none better), Brown Leghorns, utility Rhode Island Reds and Barred Plymouth Rocks, choice Anconas, Black Minorcas and Blue Andalusians, bred for heavy egg production. Free folder. Order early. McDonald Poultry Ranch and Hatchery, Route 1, Box 246, King Road, San Jose, Cal.

WE are now booking orders for S. C. White Leghorn Baby Chixs from strong, healthy, vigorous stocks, bred especially for heavy egg production. From 200 to 280-egg strain. If you want strong, healthy Baby Chixs place your orders with the. Vineburg Hatchery, Vineburg, Cal. All Baby Chixs guaranteed. Safe delivery.

HIGHEST prices paid for Hens, Fryers, Roasters, Ducks, Geese, Turkeys and Rabbits. Write or wire us for prices. Haber Poultry and Egg Market, 654 South San Pedro Street, Los Angeles, Cal.

FREE BOOK, "Chickens From Shell to Market," describing the "Coulson" system of feeding, as well as giving other information of interest to Poultrymen, on application to COULSON COMPANY, Petaluma, Cal.

"EASTMAN'S Bred-to-Lay" Barred Rocks. FALL CHICKS, MARCH-APRIL PULLETS. Fairmead Poultry Farm, Fairmead, Calif.

BABY CHICKS—Thoroughbred White Leghorns, Hoganized. No dead or weak ones charged for. Schellville Hatchery, Schellville, Sonoma, Cal.

WHITE Leghorn Baby Chicks, Trapnested stock. Booking orders for now and future delivery. Pebbleside Poultry Farm, Sunnyvale, Cal.

CORNISH Indian Game Cockerels. Prize Winners. Half price. Hens and Pullets. Hatching Eggs. Book orders now. Livingstone, 3804 Winter, Los Angeles, Cal.

## DUCKS

CALDWELL'S WHITE MUSCOVY (QUACKLESS) DUCKS, WIN, WEIGH, LAY AND PAY. LARGEST DUCK OF THE DUCK FAMILY. EGGS, DUCKLINGS, BREEDERS. FREE CIRCULAR. CALDWELL DUCK RANCH. BOX 274, LOS ANGELES.

## POULTRY SUPPLIES

ALL makes incubators, Queen Colony stoves, Blue Flame Reliable Brooders, simplicity stoves, automatic founts, feeders, trapnests, feed cutters, leg bands. Everything for the Poultryman in our complete stock. Write for general catalogue.
C. E. HILL CO.,
418 11th Street Oakland, Calif.

## TURKEYS AND GEESE

GIANT BRONZE TURKEYS

Large turkeys can be raised at practically same cost as small ones. It is in the strain. One of our toms will give you five more pounds of meat to market in all his get the first year, besides vitality and beauty.

GOLD NUGGET STRAIN
J. Will Blackman, Originator.

Won at California's two greatest shows, Gold Special Sweepstakes for best turkeys, California State Fair, 1920, against 66 of the State's best turkeys, also every 1st, 2nd and 3rd prize and Gold Special Sweepstakes at Los Angeles Livestock Show of 1920.

AN UNEQUALED RECORD

Toms and hens for sale; a few high class exhibition toms to win in any show or head any flock. Book orders early for December and January shipment, as each year we are sold out.
Address
BLACKMAN & MUMFORD,
607 East Third St., Los Angeles, Cal.

TURKEYS—Mountain raised pure bred giant bronze breeding and exhibition stock for delivery after November 15th. Prices reasonable.
Flock No. 1—Cockerels and Pullets, sired by "Goldbank Boy," champion giant bronze first prize winning cockerel at Madison Square Garden Show, New York, January, 1921, (premier poultry show of America), himself a son of "Goldbank VIII," winning adult Tom at same show. This champion cockerel weighed between 28½ and 30 lbs. at seven months and was last season mated to our choice 20-lb. hens.
Flock No. 2—Cockerels and pullets sired by "Copper King Jr.," a 36-lb. yearling son of "Copper King V," the 38-lb. yearling that was grand champion at Madison Square Garden Show, January, 1919. "Copper King Jr." Also mated to choice 20-lb. hens.
Your inspection of our choice flocks invited. Egg orders accepted for spring delivery. For further particulars address, Bronze King Mountain Farm, Calistoga, Cal.

**A WILD TOM WILL PRODUCE**
five to twelve more turkeys per hen.
**WHY?**

Fertility and big, strong, live poults, instead of scrawny, weak and dead ones. Ask our customers. Stock and eggs. M. A. Stutsman, 3423 Atlantic Street, Los Angeles, Cal.

HART'S Mammoth Bronze Turkeys. Oldest strain in the Pacific Coast. Can furnish some fine young hens and toms, also yearling stock. Prices reasonable. Eggs in season. Circulars sent on request. Albert M. Hart, Clements, Cal.

BRONZE Baby Turkeys from mature stock, $50—100 (35 lb. Toms); Eggs, $35—100. Inglewood Poultry Company, Box 242, Inglewood, Cal.

SPENCER Turken hybred foul. Half turkey, half chicken. Best turkey meat; 212 eggs year. Booklet free. Z. T. Spencer, Santa Cruz, Cal.

Bronze Turkeys, Toms $15, and hens $10. Mrs. Carrie P. Oard, Box 1087, Angels Camp, Calaveras County, Cal.

FOR SALE—Fine strain turkeys, wild and bronze. Blanche Dresser, Rt. C, Box 194, Tulare, Calif.

## TRANSFERRING LIQUID

Lightning Transferring Liquid: Transfers instantly any printed pictures onto paper, cloth or glass. Price 25c. E. Whittaker, Wolf Creek, Oregon.

## FIELD GLASSES

Large French Field Glasses, Cheap. Address Box 724, Cincinnati, Ohio.

### HOW TO DO IT

DO YOU want practical suggestions on how to build a silo, a hog house, a poultry house, a potato storage house; how to make a fireless cooker or other farm home conveniences, a flytrap, or a self-feeder for hogs? Are you seeking ideas on how to prepare vegetables for the table, how to care for food in the home? how to bake bread and cake and other eppetizing foods in an efficient and economical manner? Is there some practical question about your corn or wheat or cotton or other crops, or about your poultry or live stock, to which you are seeking an answer? The answers to thousands of such questions, with practical suggestions for doing thousands of things about the farm and home, are contained in over 500 Farmers' Bulletins, which can be obtained free upon application to the Division of Publications, United States Department of Agriculture, Washington, D. C. Some late bulletins are listed on page 15.

# Co-operation

(Continued From Page 9)

who have signed identical contracts to market their entire production of dried prunes and dried apricots through the association.

The association does not own an acre of orchard land. It does not grow one prune or apricot tree. It does not produce a single pound of the fruit it sells. It is purely and simply a marketing agency.

The entire business of this association consists in taking the prunes or apricots delivered to its packing houses by its grower members, grading, processing and packing the fruit and selling it in the markets of the world for the best prices it can obtain. Every penny received by the association from the sales of the growers' fruit is returned to the grower less actual marketing costs.

## Growers in Control

The growers themselves are in direct control of the management and policies of the association. In the present association this control is exercised through a board of trustees. In the reorganized association the control will be through a voting board of thirty-nine members chosen by popular vote in every growing district of the State.

The members of the voting board serve for seven years, the term of the contract between the association and its grower members, and are so apportioned that every prune and apricot-producing district of the State is represented on the board. This board elects another board, consisting of fifteen directors, who serve for a period of one year and keep in contact with the actual management and business affairs of the association through monthly meetings held in the association's offices in San Jose.

SELECTION OF ACTIVE OFFICIALS

This board of directors choose a president, a general manager and other executive officers needed to conduct the business of the association, and these officers make monthly reports to the board of directors on the status of the association's affairs.

The California Prune and Apricot Growers, Inc., differs from some of the other co-operative growers' associations, in that every grower member deals directly with the head offices of the association and not with branch associations, or offices scattered through the various growing districts. All sales are made directly by the central association. All payments to the growers for their fruit are made by the central association.

The association was organized to reduce speculation in the buying and selling of dried prunes and apricots, to stabilize markets and to standardize and improve the quality of the pack. Has it accomplished these objects?

## What Has Been Accomplished

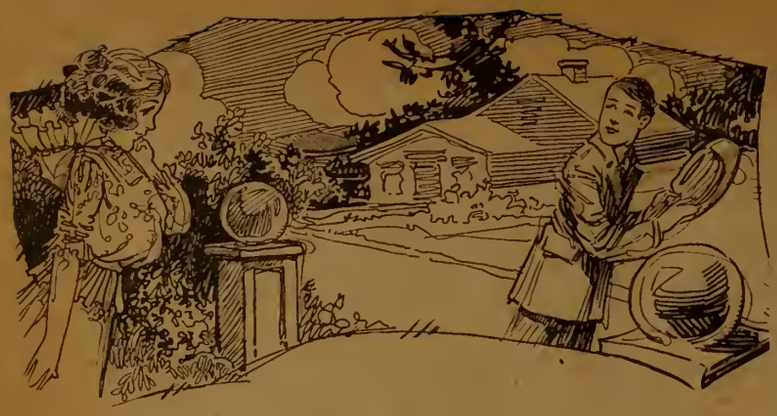
The record of the prune and apricot association for the four years it has been in operation is the best evidence of the value of such an association to the growers and the industry.

Organized May 1, 1917, the association, four months later, faced the problem of selling the largest prune crop California ever had produced. Further complicating this problem were bumper yields of every other important dried fruit product, including raisins, peaches and figs. Yet this infant association successfully sold the huge prune crop of 1917—totaling 216,000,000 pounds—and maintained a steady market throughout the season.

Nineteen eighteen brought an even more difficult problem for the association to face. In September of that year the State was swept with heavy rains at the height of the drying season—rains which damaged millions of pounds of prunes. The association could have taken this partially destroyed fruit, treated it so that it looked like good quality fruit, and sold it.

Instead, the association took the arbitrary stand that to flood the market with this off-quality fruit, much of which would have spoiled before it was bought by the consumer, would destroy

(Continued on Page 34)



# *Will You Remember Me?*

YOU will be remembered every month of the coming year if you send your friends the gift of personal remembrance—a subscription to ORCHARD and FARM.

AS a special Christmas offer we will give you two one-year subscriptions to ORCHARD and FARM, sent to any address in the United States, for $1.50. (The regular price is $2.00.)

WE will send them a Christmas card, stating that through your kindness you are sending them a year's subscription to ORCHARD and FARM.

IMAGINE how pleased your friends will be when they receive their first copy of ORCHARD and FARM and the gift card stating that you are sending them the magazine every month of the coming year.

REMEMBER your friend every month of 1922.

USE THE COUPON

*Orchard and Farm, Los Angeles, Calif.*

Enclosed please find $1.50, for which please send Orchard and Farm for one year to:

| | |
|---|---|
| Name ..... | Name ..... |
| Box, R. F. D. or Street..... | Box, R. F. D. or Street..... |
| P. O. ..... | P. O. ..... |
| State ..... | State ..... |

# BOYS AND GIRLS

## Their Work and P.

### A YEAR

A year is like a loaf of bread,
All fresh and fair and new,
With every day a little slice
From off that loaf for you.

And sprinkled sometimes through the loaf,
To make the flavor good,
Are raisins—holidays that come
Exactly as they should.

The year is like a loaf of bread,
So fresh and new and fair,
And when its nibbled all away
Another waits you there!

—Youth's Companion.

## Story Contest Winners

WE RECEIVED a great many interesting Christmas stories from our boys and girls and we wish we might print them all. But that is impossible. Therefore we are publishing below the three prize-winning stories, and sending a crisp, new, one dollar bill to each writer. The following three were the lucky winners:

**Eugenia Niblack**, Quincy, Wash., "A Christmas Surprise."

**Le Grand Young**, San Leandro, Cal., "A Christmas Dream."

**Pauline Harper**, Chowchilla, Cal., "Hannah Ann's Christmas."

The following boys and girls are awarded Honorable Mention: Anna Lierck, San Francisco; Hazel Sturzenegger, Chowchilla; Lorene Kiefhaber, Lankershim; John Sanders, Oakland; Esther Almgren, Reedly; Harry Bosworthe, Fresno.

## A Christmas Surprise

THE night before Christmas, Ted and Helen hung up their stockings on the shelf over the fireplace as they had done each Christmas Eve before. Ted's stocking was blue and Helen's black, and although Ted's was the larger, because he was two years older, Helen said she was sure Santa Claus would put some of her presents under her stocking.

They woke up early Christmas morning, eager with excitement and ran downstairs to find their stockings brimful with interesting-looking bundles. Directly under the stockings lay a large package wrapped in heavy brown paper and tied with coarse string. The bundle was larger than Ted and they could neither of them imagine what it could be. Their mother said they would have to open it and find out.

They thought they would empty their stockings first, but before they got half way down to the foot, they concluded they could not wait, but must open the wrapper. There were several layers of paper which they tore off in their excitement. Then came a shout from Ted, for there lay their cousin Jack, very red in the face from his close quarters and trying to suppress his laughter.

What a merry time they had! Jack had come the night before after they had gone to bed, and mother and father had decided to make him a Christmas surprise.—Eugenia Niblack, Quincy, Wash. (Age 13)

## A Christmas Dream

NED AND TOM were sitting by the fireplace trying to coax their mother to let them remain up just a little bit longer. "No," said mother, "you must go to bed now so Santa Claus can trim the tree and leave your presents, and by no means must you come down while he is here for he does not like to have boys and girls see him, and he is apt not to leave your presents should he discover you doing such a thing." Now Ned and Tom always had wanted to catch a glimpse of Santa Claus, but finally obeyed their mother and went upstairs.

They had not been asleep long when Tom heard a noise on the roof. He shook Ned and together they crept over and looked out of the window. There on the driveway were Santa's sleigh and reindeer. They knew Santa was in the living room, so carefully tiptoed down the stairs for a forbidden peek at him. They had almost reached the living room door when there was a great crash. Tom had knocked over a chair in the dark. Santa said they had been disobedient boys and he did not know whether or not he should leave them the sleds and bicycles they wanted, for he left such things only to boys and girls who obeyed their fathers and mothers, not only on Christmas Eve but all through the year. Then he sent them back to bed.

The next morning Tom was almost afraid to go downstairs. Perhaps Santa had not left them anything! Then suddenly he reached over and awakened Ned, for he remembered it had only been a dream, and told him about it and together they went downstairs in great excitement.

They found Santa Claus had left them about everything they had asked for, and they were glad they had been obedient and the dream only a dream after all.—Le Grande Young, San Leandro, Cal.

## Hannah Ann's Christmas

HANNAH ANN MURPHY was quite sure she would not be able to give presents to any of her friends on Christmas because she was very poor, and her mother had said that she did not think Santa Claus would visit their home that year. Naturally this made Hannah Ann sad for she had heard the girls at school tell about the Christmas trees their parents would buy for them, and the beautiful things they would be sure to find on the tree Christmas morning.

With all her heart, Hannah wanted to wake up Christmas morning and find numerous mysterious bundles tied up in crispy tissue paper and gay red ribbons addressed to her very own self, and as well, she wanted to give to her friends just such interesting bundles. But how could she do it when there was only money enough for the bare necessities?

One day while looking through some magazines she noticed an article telling how a girl had earned her Christmas money. She read farther and found that by selling subscriptions to mazagines she could earn a nice sum of money and premiums beside. She was delighted and in a few days started out on her selling tour. She found it delightful and easy work and when the week before Christmas arrived she had a nice little sum all her very own. Hannah's mother was very proud of her and together they bought many pretty things for friends and relatives.

On Christmas morning Hannah awoke to find lots of lovely things under her own Christmas tree, and it made her feel doubly happy to know she had been able to make other boys and girls glad just as she had been made glad.—Pauline Harper, Chowchilla, Cal. (Age 12)

## How I Raised My First Pigeons

THE parent birds of two squabs about two weeks old were shot, so I decided to raise the young orphans. I fed them soft wet feed and kept them in a box on the porch until they were older. They became very tame and would light on my shoulders and fly up to me whenever I came on the porch.

I now have about thirty-five pair and I have built all their houses and take care of them myself. Later on I intend to raise some for market.—Willard E. Adams, Gridley, Cal. (Age 8)

## Your Garden of Flowers

By Helen Temple

WINDOW boxes, hanging baskets and porch boxes not only are decorative, but also provide growing plants when there is little space available for outside gardens, or where a garden is not feasible.

Helen Temple

However, soil requirements constitute the most important item in the growing of plants confined to the limited space of a window box or pots.

Plant food must be furnished in concentrated form; thus it is necessary to supply a mixture of the richest soil available, which must be friable, as well as rich, to prevent souring. Sifted leaf-mold, coarse river sand and well rotted stable manure in equal portions usually furnish ideal soil that will not sour.

OUTSIDE WINDOW BOXES

Flowering plants of the taller varieties most suitable for outside window boxes are geraniums, hydrangeas, lantanas, marguerites, salvias, begonias, petunias, stevia, cannas, impatiens and swainsona. Tall foliage plants are aspidistra, palms, ferns, coleus, crotons, elephants' ears, achryanthes and cordyline. Lower growing flowering plants are pansies, forget-me-nots, primulas, cigar plants, bellis perennis and phlox, and lower foliage plants such as rex begonias, peperomia, smaller ferns, alternanthera and the smaller coleus will make a good showing. Edging for window boxes of half erect varieties are the lobelia, Tom Thumb alyssum, fuchsia, verbenas, ivy geraniums, dwarf nasturtium and variegated grass. Vines such as tall nasturtiums, English ivy, trailing Evonymus, trailing Vinca, Japanese ivy, German ivy, Cobea vine, manettia vine, Wandering Jew, canary bird vine and Sprengeri asparagus add much to the beauty of window boxes and hanging baskets.

All of the plants named for outside window boxes will grow well indoors if good ventilation is provided. However, the larger plants and flowers are not advised, unless the boxes are very large, and the windows low and wide. There are many plants and flowers that will grow well indoors, but will not live outdoors unless the climate is unusually mild and the situation sheltered.

Bulbous plants such as freesias, narcissi, hyacinths and tulips are excellent window plants. It is advisable to plant the coleus, begonias, primulas, cyclamen, calceolarias, cinerarias and gloxinias indoors. These plants, together with choice ferns, will add more to the decorative scheme than common varieties such as geranium and nasturtium. These latter are beautiful outdoors in a window box, and in most regions of California they may be grown the year around.

## What to Plant in December

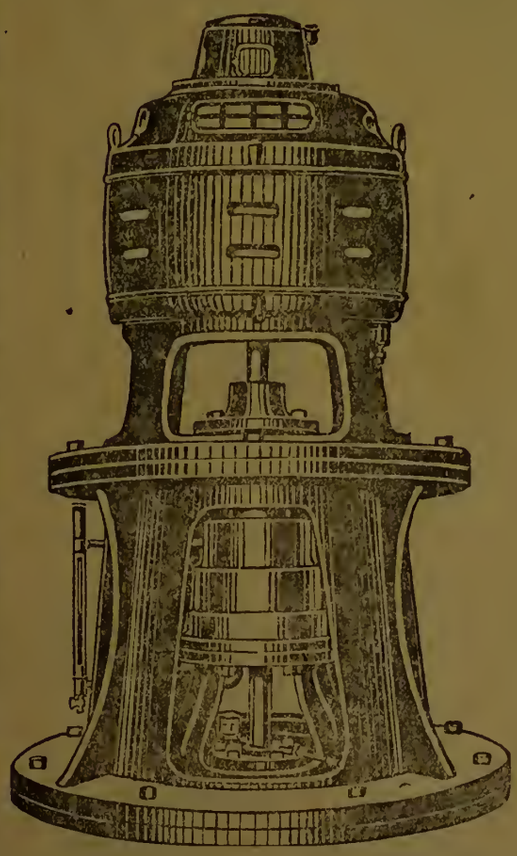
DECEMBER planting is very limited in most sections of the State. Sweet peas may be sown where the soil is warm. Carnation plants will start root growth if set out now. This is not advised for the gardeners in the interior, however, unless the frost is out of the soil and protection provided.

Hardy annuals may be sown out of doors in the semi-tropical and Southern coastal regions. In the interior regions, start them in cold frames or hot beds for early spring transplanting. Dutch bulbs may be set out in most sections, although where there is a great deal of frost and snow, a mulch of old straw and manure should be added to the top soil. If the soil in the garden has not been turned over, December is an excellent month in which to do this. A walk up the hills will provide many fine ferns for the house and conservatory this month. Often wild ferns best suited for transplanting may be found [illegible] the winter.


# mammoth pump capacity

## —a Layne and Bowler Achievement

Pictured below is the type of Layne and Bowler Pump recently installed on the Arroyo Ditch Company's property at Riviera, California. The pump delivers 3480 gallons of water per minute and is one of the largest producers on the Coast. L. & B. Pumps are manufactured in sizes and capacities to produce from 180 to 4500 gallons per minute.



**LAYNE & BOWLER**
**Water Engineers**
**At Your Service**

Our organization includes the largest corps of expert water engineers to be found in the country. No matter what your water requirements may be our engineers can assist you in selecting the type of pump best adapted to your needs. If you contemplate the installation of a new pump or the development of a new water supply, secure authoritative advice from our engineers. This places you under no obligation to purchase L. & B. Pumps.

**LAYNE & BOWLER CORPORATION**

**900 Santa Fe Ave., Los Angeles**

WORLD'S LARGEST WATER DEVELOPERS



# PIPE

RIVETED WATER PIPE

Montague Well Casing and Riveted Steel Pipe for Surface Irrigation.

Oil and Water Tanks, Siphons, Stacks and Steel Flumes.

Write for Price List Number 4.

**Montague**
Pipe and Steel Co.
WELL CASING
San Francisco.



# WITTE LOG SAW

*Made By The Man Who Sells It.*

My Direct Factory Price Saves You $50.

Latest Model
Lever Control
Works Easier
Cuts Faster
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Cash or Easy Terms

**Greatest of All Log Saw Offers**

Both outfits, complete, for price of Log Saw alone. Saw logs or cut down trees. Make Money. Big demand for wood. Every man can own a WITTE Latest Model Combined Log and Tree Saw on this offer. Newest improvements—Better built. An Engine You Can Depend On. Has two fly-wheels for steady running of saw blade at full capacity. Use engine for belt work without removing saw gears or taking rig apart. Does not require an expert to operate Engine or Saw. Lifetime Guarantee against defect. Quick change from Log to Tree Saw. Set and start Tree Saw in 10 seconds. Users say—"Beats any other"—"Runs fine!" Every WITTE rig complete, ready to operate Immediate Shipment. Write quick on this offer.—ED. H. WITTE,

**WITTE ENGINE WORKS.** 3129 Oakland Ave. Kansas City, Mo. 3129 Empire Bldg. Pittsburgh, Pa.

Write for Log and Tree Saw Catalog Today

The Only Practical Tree Saw Built.

# High Power Spraying

BECAUSE of the density of foliage of citrus trees, it has been necessary, as all producers know, to work very close to the trees in order to penetrate to the interior with the ordinary spray outfit.

Growers, therefore are greatly interested in the performance of the modern "high-power" machines, using as much as 450 pounds pressure.

Because of the tenderness of the blossoms and buds on deciduous trees, the strong pressure would not be practicable, but in the case of citrus fruits, the spray actually will knock dead twigs and leaves a considerable distance into the air, with a 50 to 60 per cent "knock-off." By this is meant that more than half of the infestation is removed through physical force rather than chemical "kill."

By reducing the pressure to 300 pounds or less, the same large-capacity outfit is used on deciduous trees. The large outfits deliver as much as 25 gallons per minute at 300 pounds, it is said. Apple and pear growers, especially, are interested in this feature, since at times it is necessary for them to cover a large number of trees in a very short time.

But citrus growers, especially, are reported as enthusiastic over the high-pressure outfits. The operators are able to work with the "guns" far down the rows and without undue effort or waste of time can penetrate to the very center of each tree.

—Illustration, Courtesy Bean Spray Pump Co.

*New High-Power Sprayer in Action*

# Co-operative Marketing

(Continued From Page 31)

confidence not only in the association, but in the quality of future packs, and that it was better to sacrifice small additional profits for one season than to endanger steady profits for years to come.

In the face of a storm of criticism on the part of the growers who wished to sell their fruit through the association for whatever price it would bring, the association held its ground and declined to lower the quality of its pack by sending out any fruit about which there was the least question of a doubt.

This one act of the association did more to create a feeling of confidence on the part of the wholesale and buying trade of the country for the quality of fruit put out by the association than could have been built up through years of effort under normal conditions.

During 1919 the association successfully sold the largest prune crop which ever has been produced in California at prices which yielded the growers the greatest profits they ever had received.

Many growers do not yet realize the tremendous service which the association rendered them last fall. These growers have been blinded by the fact that they have not received full payments for their fruit as quickly as they have in past years, and some of them measure the entire success of the association by the cash they hold in their hands.

### SAVED THE INDUSTRY

Without fear of contradiction it is possible to assert that the association, and the association alone, prevented a complete collapse of the prune market last winter, which would have forced prune prices to such a ruinously low level that hundreds of growers would have been wrecked financially.

With private business interests dumping stocks on the market in a wild effort to obtain cash sufficient to carry them over a tottering period of readjustment, the association refused to be stampeded into selling its prunes until the business hurricane had passed [illegible] began to appear in [illegible] with renewed confidence.

[illegible]'s bitterest enemies in [illegible] could admit today that [illegible] stand saved the dried [illegible] market from going to smash last winter. When buying began again last spring, the association had practically the entire hold-over in its hands, and with the steadily increasing demand for prunes, which grew larger and larger through June, July and August of this year, it has cleaned up completely all of its stocks at prices which it would have been impossible to obtain last winter.

### THIS YEAR'S ATTAINMENT

It has been estimated that three-fourths of the 1920 prune crop remained unsold on January 1, 1921. Most of this tremendous "hold-over" was in the hands of the association on that date. In the sale of these hugs stocks in the late spring and early summer, a season when the buying trade heretofore has been accustomed to show its principal interest in new crop purchases, the association rendered a service to the growers which, if it had done nothing else, would be incontestable evidence of the value of the co-operative marketing agency.

[The stories of other California co-operative organizations will be told in succeeding articles.—Editor.]

## Subscribers Say:

**Information Reliable**—"I like ORCHARD and FARM as it is a paper of the Coast and we can rely on everything it contains. I wish you every success."—Mrs. May Rist, Calistoga, Cal.

**Always Contains Valuable Ideas**—"ORCHARD and FARM always comes to me loaded with good ideas, which certainly have been of much valuable help."—D. R. Ruble, Salem, Ore.

**Exchange of Ideas a Prize**—"The exchange of ideas in the Helpful Suggestions Contests is like a prize itself. I think this department one of the most attractive in your journal."—F. A. Wilkendorf, Woodland, Cal.

**Ready Reference**—"I enjoy your magazine very much and keep them all near at hand for reference."—Mrs. C. C. Richmond, Riverside, Cal.

# Sunflowers

## Getting Along

"So you're now a stockholder in this big cattle company?"

"Yes, I hold the stock in the showring."

## Near Tragedy

"My, what an awful waste!" exclaimed the garbage man, as he turned a little pail.

A stout woman, just passing, was so angered that she struck him over the head with her umbrella.

And it is said that the garbage man ALMOST kicked the bucket!

### MODERN ENGINEERING

We once measured horsepower in gallons of oats,
But now it has come to a pass—
Where the grain is consumed by the cows and the goats
And horsepower's in gallons of gas.
—Justin Nutt

## Good Guesser

Doctor—"Now, I want you to take a teaspoonful of this after every meal."

Patient—"Will it cure my trouble?"

Doctor—"That's just what I am trying to find out."

## Say That Again

She (to fair friend)—"I'm not going with Harry any more."

Fair Friend—"Why not?"

"He knows too many naughty songs."

"Did he sing them to you?"

"No, but he's always whistling the tunes."

## Pillar of the Church

They were holding a revival meeting in the African M. E. Church at Milk Corners, Alabama. One night an old darkey got up in the meeting and testified:

"Bredern an' sistern—yuh-all knows an' ah knows that ah ain't ben wut ah oughter ben. Ah'se robbed hen roosts and stole hawgs an' tol' lies an got drunk an' slashed folkses wi' ma razor, an' shot craps an' cussed an' swore; but ah thank th' Lawd dere's one thing ah ain't nebber done—ah ain't nebber lost ma religion!"

## His Busy Day

He—"You know I love you; will you marry me?"

She—"But, my dear boy, I refused you only a week ago."

He—"Oh, was that you?"

### IT'S NO USE!

Last Christmas I hinted adroitly and gently
On what I would like, but folks evidently
Paid little attention. I might have expected
My wishes would be quite ignored and neglected.

I mentioned a bathrobe, and even gave warning
The car lacked a wrench and a good pair of nippers.
But my usual gifts were on hand Christmas morning—
A green and red necktie and six pairs of slippers.
—Justin Nutt

## The Chronic Optimist

A group of war veterans were discussing Thanksgiving. One of the guests was a veteran who had lost both legs.

"And what have you to be thankful for?" they asked.

"Lots," he replied. "I've got cork legs, and I can put on my socks with thumb-tacks." — American Legion Weekly.

## Bad Practice

Mrs. Reddy—"Why don't you let your Willie play baseball with the other boys?"

Mrs. Green—"A part of the game is stealing bases, and I'm afraid it might have a bad influence."

—Topics of the Day.

## BULLETIN BOARD

### SECRETS THAT SHOULD NOT BE DIVULGED

We should not "give away" the surprises we have in store for our readers, but some of them are too good to keep to ourselves. For example—

**The Story of a Successful Poultryman**—This young poultry breeder is receiving each month $600 to $1100 in "egg money" from his two-acre poultry plant—in addition to other returns. How he does it described in detail in the January number.

**Pages and Pages of Pictures**—Do you like the picture pages? They are expensive, but so are the many big features that make ORCHARD and FARM bright, interesting and helpful. Consider the contributions of Luther Burbank, for instance; the regular articles by George P. Weldon; the attractive cover designs in colors. No expense is spared in giving ORCHARD and FARM subscribers the best.

**Two Women on Half an Acre!**—Soon we shall publish the remarkable story of two women who have lived well on the income of one-half acre for nearly 20 years. Watch for this interesting biography.

**How to Detect Alfalfa Weevil**—Every farmer should read Mr. Weldon's valuable paper. The dread alfalfa weevil is coming nearer and nearer the boundaries of California. It must not be allowed to gain a foothold in this State. Post yourself and co-operate in keeping it out. See the January number.

**How I Succeed With My Hogs**—Carl G. Meiners, whose story appears in this number, will tell in the January issue of the methods that have made his hogs profitable.

### ALTHOUGH THIS IS THE LAST PAGE OF READING MATTER—

You have not made the most of your magazine unless you have read the advertisements carefully. And don't overlook the many bargains, business opportunities and new ideas on pages 30 and 31. Modern advertising is as truly representative of progress, science and the best thought as modern literature. To overlook the "ads" in any publication is to miss one of the short cuts to a liberal education!

## "See You Next Year"—Merry Christmas to All

# *Luther Burbank Says:——*

## "Marl Makes Humus Available for Plant Food"

### The Highest Soil and Plant Authority of All Time Endorses Marl for Improvement of the Soil

After examining samples of BERNAL MARL, in both its natural and powdered form, from the great shell deposit near San Jose, Mr. Burbank authorized the following statement concerning it:

> *"Marl has been used for hundreds of years for soil improvement, its principal value being its lime content. Marl has a tendency to make heavy soils friable, and sweetens soils that are acid. Marl makes humus available for plant food. The profit in its use will depend upon the condition of the soil, the value of the crop and the cost of the marl."*

BERNAL MARL is a highly decomposed, air-slaked lime of shell origin. As it goes to the farmer it is a fine, rich powder that will be carried into the soil by this winter's rains.

BERNAL MARL WILL ENABLE THE SOIL TO UTILIZE THE NATURAL AND APPLIED FERTILIZING ELEMENTS, RELEASING THE HUMUS FOR PLANT FOOD. ITS ACTION WILL BE IMMEDIATE AND IT WILL RETURN PROFIT ON ITS COST IN THIS SEASON'S CROP.

BERNAL MARL will increase your yield, the farmer's only remedy for falling prices.

*"Large areas of non-productive land in New Jersey were restored to fertility by the use of marl. . . ."* *Statement by Luther Burbank*

The use of BERNAL MARL will restore the fertility of large areas of California land that have been successively cropped without liming.

**Apply BERNAL MARL now, in order to take advantage of this winter's rains.**

**BERNAL MARL FERTILIZER COMPANY**

**Lloyd W. Stetson, Sales Director**
**207 S. 1st St., San Jose, Calif.**

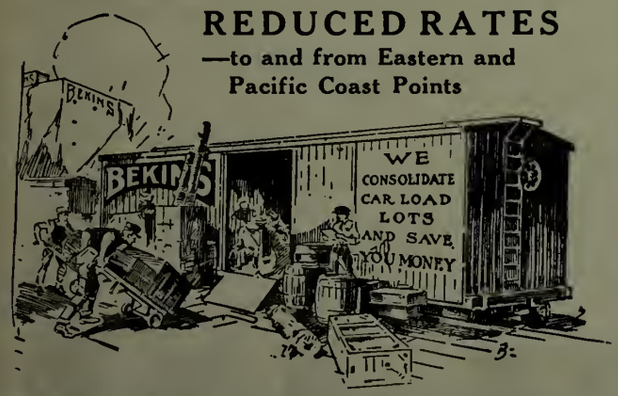
SIGN AND MAIL TODAY
Bernal Marl Fertilizer Co.:
Send more information and quote prices on Bernal Marl.

Name .....

Address .....



## REDUCED RATES
**—to and from Eastern and Pacific Coast Points**




**No matter what quantity of goods you have to ship—your *Household Goods, Furniture* or *Automobiles* will receive through-car service in our consolidated cars.**

**Pneumatic Tired Vans for Local and Suburban Transporting**

Los Angeles
San Francisco
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**BEKINS**
**FIRE-PROOF STORAGE**

Eastern Shipping
Offices in All
Principal Cities



**FREE 1922 DAILY EGG RECORD FREE**

Best method to record your daily egg yield. Ready for mailing in December. Write for your copy. A postal will do.

**GOLDEN EAGLE MILLING CO., Petaluma, Calif.**



# $500 Prize Puzzle Contest

## Have You Sharp Eyes?
## If So Use Them to Your Own Profit

In the following lines may be found the names of a number of California Towns plainly printed, but hidden only by the letters which precede and follow them. How many? To the person submitting the best prepared and nearest correct list will be awarded a cash prize equaling ten times the amount which they have sent me for anything I advertise up to $100:

**Calacampotre rolphe langio lancha lfante lopesc aderod eolema ricopa lermod estoma lescal onoakl andrad elanto wlemon groven icelan derson oraeth anacto navarr oyogra nderso nomano riager berend anahei mperia ltonta rionol indarw indsor osisqu occide ntalma genese eleyre karlot ustins onbeac hicoal ingard enapar adiseb astopo letall acresc entaho encant opanga ltujun gaviot amalpa isleto nealsa ngerip ondela nordec otocal omaran chuala rkspur amonap lesmer eldavi saliaq uasilo maripo santar osamon delmon tereyu caipas adenai rmulco ronado spalos olivos elmari tomant ecapit olafay etters burgle nburne ttehac hapiru therfo rdiabl ooming tonyxe mpires condid ominor ialtop azusan juanba utista teline edlesp artorr anceme nterpr isespe anutud orrist altarp anapug**

It costs nothing to enter this contest, but the prize awards are arranged in four classes. Of course, the object is to introduce our goods to new patrons, and those who send no order with their entry will be awarded only the prizes as stated in Class 4. Those who accompany their response with an order amounting to $2.00 or more will be in Class 3; those who send $5.00 or more, Class 2; and $10.00 in Class 1. All will receive bonus rewards for their work as shown in these four classes, according to the merits of their lists. For the ten best lists submitted prizes will be awarded and paid as follows:

| Class 1 | | Class 2 | | Class 3 | | Class 4 | |
|---|---|---|---|---|---|---|---|
| 1st | $100 | 1st | $50 | 1st | $20 | 1st | $10 |
| 2d | 75 | 2d | 40 | 2d | 15 | 2d | 5 |
| 3d | 50 | 3d | 30 | 3d | 10 | 3d | 4 |
| 4th | 25 | 4th | 20 | 4th | 5 | 4th | 3 |
| 5th | 20 | 5th | 10 | 5th | 3 | 5th | 2 |
| 6th | 10 | 6th | 5 | 6th | 2 | 6th | 1 |

Seventh to tenth, inclusive, prize same as sixth, shown above

If you are awarded first prize and you are found to be in Class 1, your prize will be $100. If found to be in Class 2, you will receive $50; Class 3, $20; Class 4, $10.

All lists must be mailed on or before Christmas Day, written on one side of a sheet with nothing else on it but name and address of sender. Names must be numbered in the order in which they are found in the above lines. These are postoffice names and cannot be counted unless given in U. S. Postal Guide for 1920, which any Postmaster will show you.

Any letter may be used one or more times in making different words. In case of a tie full amount earned will be paid to each contestant so tied.

A catalogue of seeds, plants, etc., will be promptly sent to any one desiring to make other selections than herein offered.

A typographical error occurred in a former advertisement, so please verify your list by the above lines, which are correctly printed.

## Feed Your Mind as Well as Your Body

Although my specialties have been improved fruits, vegetables, grains, etc., calculated to supply finer foods to tickle the palate and nourish the body, I feel that many of my customers do not realize the great importance of also selecting the kinds of literature best calculated to nourish and develop the mind as well as body, and so take pleasure in calling attention to

## The World's Best Periodicals

for Country Readers. For many years I have acted as subscription agent for some of the greatest and most popular National Magazines, most of which I myself read, and occasionally patronize as an advertiser. Don't forget that whatever your crop specialty or vocation may be, your most important business and duty on earth is to help properly develop the minds of the rising generation, and that in no other way can you so surely and cheaply guide these young minds as to keep the right kinds of reading matter before them. And in carrying out this idea I will greatly appreciate your action if you will kindly favor me with your subscription to any of the following, and all such remittances will be credited to your standing as a prize contestant. Please always state if the subscription is new or a renewal:

| | |
|---|---|
| The Saturday Evening Post, weekly | $2.00 |
| The Country Gentleman, weekly | 1.00 |
| The Ladies' Home Journal, monthly | 1.50 |
| The American Boy, monthly | 2.00 |
| Woman's Home Companion, monthly | 1.50 |
| Pictorial Review, monthly | 2.50 |
| American Fruit Grower, monthly | 1.00 |
| American Magazine, monthly | 2.50 |
| Orchard and Farm, monthly | 1.00 |
| Farm and Fireside, monthly | .50 |
| Farm Journal, monthly (four years for $1.00) | .50 |
| American Farming, monthly (four years for $1.00) | .50 |
| Successful Farming, monthly (four years for $1.00) | .50 |
| Farm Life, monthly (four years for $1.00) | .50 |
| Household Journal and Floral Life (four years for $1.00) | .50 |

**SPECIAL OFFERS:** I am myself working on subscription contests for American Farming, Farm Life and The Household Journal, three great National Farm and Home Monthlies, and offer either one of my great Seed Collections, consisting of 15 large packages of the choicest Vegetable or Flower Seeds, as preferred, worth $1.50 each at any seed store, **FREE** to any one sending me $2.00 for these publications as above listed, or the same for $5.00 for other publications.

**NEW FREE PRIZE PUZZLE GAME**

**To introduce a New Creation worth Millions, $1000 will be paid for best lists of words formed from the letters comprising its name. Send 10 cents for trial package, catalogue and full particulars.**

# Isaac F. Tillinghast

**1149 Orchard St. Santa Rosa, Calif.**

# Every Poultryman

## FINDS THIS "PAY-STREAK" SOONER OR LATER

Every good hen is a mine—a golden mine of eggs. This mine will yield a certain revenue even if you go at it hit-or-miss. But, you can never expect to get the greatest yield—to strike the real "pay-streak"—until you tap the right vein. *And that's feed!*

No matter how carefully selected your stock may be—no matter how good the housing and care you give them—sooner or later you will "dig down" to this rock-bottom fact; feed is the nub and the rub of the situation.

Even the big poultry operators who have been mixing their own feeds and have switched to SURELAY will tell you it's the "cheapest" feed in the long run—cheapest because it nets *more* egg-money in return for the feed-money it costs.

These seasoned poultrymen realize—as you must—that a hen uses more energy in converting poor feed into money than she does in converting good feed into money. And, at that, how little is the difference in cost between good feed and poor feed? But look at the difference in the egg-sheet when you're through!

SURELAY has helped to put many a poultryman on his profit-feet by proving two things to him: First—that cheap feeds lessen the profits of every hen in his flock; second—that our large scale production enables us to turn out a better and more economical feed than he could hope to.

Blended and balanced according to a true-to-test formula, SURELAY stands top-high as a uniform egg mash that will make your hens pay by making them lay. The best way is the find-out-way. Order a sack of SURELAY from your dealer—and see! See how this high-grade mash "assays" in feed value. See how our daily laboratory tests insure the same feed value every time. See how SURELAY actually "pans out" with your flock. See how it rids your mind of feed-worry for all time. For "what's on the tag is in the bag"—always!

Also, send for the new edition of our booklet, "Makes Hens Happy." It is by far the most complete and helpful book we have ever issued on poultry feeding. And it's free! Simply clip the coupon—and mail today!

# SURELAY

**"A Sperry Product"**

Stock and Poultry Feed Dept.
**SPERRY FLOUR CO.**
204 Weber Avenue
Stockton, California
Please send me, without obligation, your new booklet, "Makes Hens Happy."
Name _____
Address _____

SPERRY PRODUCTS IN EVERY HOME SPERRY FLOUR